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Editorial letter

My colleagues, I am calling on everybody to support the journal while approaching 30 anniversary next year.

The journal require more active involvement in publishing editing and financial support.

With great difficulty, we are getting a number of papers every six months so we can be running.

Do you have any suggestions as I feel it’s not long before we lose the journal.

Walid Sarhan
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Editorial

Safety and Tolerability of Antipsychotics
Ahmed Okasha

Abstract
Antipsychotics are commonly used to treat schizophrenia, bipolar disorders, depression, and other conditions where psychotic symptoms occur. Antipsychotics are classified as typical first-generation agents (FGAs) or atypical second-generation agents (SGAs) or third generation (Dopamine Partial agonists) and lately recent antipsychotics. Regulatory agencies have approved their usage in the adult population 18-65 years. However, these agents are prescribed ‘off-label’ for children and adolescents. Antipsychotics have special warnings for use in the elderly patients with dementia-related psychosis that includes an increased risk for fatalities and cerebrovascular events. Extrapyramidal side effects (EPS) and tardive dyskinesia are a risk with all antipsychotic classes. Even though antipsychotics can lower seizure threshold, clozapine is the most commonly known for this adverse effect. The metabolic syndrome associated with the SGAs is well known, and olanzapine most commonly produces weight gain and lipid changes. Thioridazine and mesoridazine have a ‘black box’ FDA warning due to QTc prolongation and risk for torsades de pointes. Hematologic disorders such as agranulocytosis are associated with clozapine and specific guidelines for patient monitoring are established. Both FGAs and SGAs are known to produce elevations from baseline prolactin levels with risperidone and paliperidone and amisulpride. Aripiprazole was reported to have the least effects on plasma prolactin levels. Neuroleptic malignant syndrome is an acute medical emergency, and antipsychotic therapy must immediately cease and the patient treated in the hospital.1

Keywords: Antipsychotics, safety, tolerability, adverse effects, elderly, child and adolescent

Introduction
Antipsychotics are the mainstay therapeutic treatment for a variety of psychiatric conditions, including schizophrenia, bipolar disorders, and others associated diseases. These psychiatric disorders have acute episodes of psychotic symptoms requiring immediate therapy. However, usage of antipsychotics often requires chronic disease management as these conditions are long-term debilitating diseases. With the exception of clozapine, all other antipsychotics were found to be equally effective agents.2 Adverse side effects of antipsychotics are associated with their pharmacologic actions at various receptors located in the central nervous system (CNS) and periphery.3-5 Pharmacovigilance detects, assesses, and attempts to understand the adverse effects of medications so that preventative measures can be employed to maximize their outcomes and tolerability. The adverse side effect profiles of 15 antipsychotic agents (both first generation and second generation) were compared using meta-analysis from over 200 clinical trials and provided an overall profile of each agent relative to the other antipsychotics with six parameters (e.g. all-cause discontinuation) so that policy decision-makers can formulate practice guidelines.6

From the practical perspective, patients typically experience more than one adverse effect at any particular time during treatment with different levels of severity.2 These types of studies focus on the adult population, and antipsychotics are used in all age groups from the geriatric population to children and adolescents, including during pregnancy.

At a mechanistic level, drug treatments for schizophrenia are presently based on the dopamine hypothesis concerning the symptoms of this disorder.7 The development of second-generation antipsychotics that began 25 years ago has yielded some advances in terms of efficacy, with some modest improvement in addressing the negative symptoms of this condition, and in tolerability, particularly with regard to extrapyramidal side effects.8 However, no antipsychotics display robust effects on the cognitive deficits or impaired social processing that are important components of this
disorder. For years, the limited efficacy of conventional and second-generation agents has led to theories about whether the manipulation of brain targets other than, or in addition to, the dopamine D2 receptor (D2R) may be necessary for treating this disorder and to significantly improve safety and tolerability. In recent years, the N-methyl-D-aspartate (NMDA) receptor hypothesis of schizophrenia has been validated in preclinical animal models and humans. According to this theory, the excessive dopamine release in the mesolimbic pathway and the decrease in dopamine release from the mesocortical pathway in the prefrontal cortex, which are responsible for some of the symptoms of schizophrenia, are secondary to a decrease in NMDA receptor control of inhibitory GABAergic neurons. No drugs capable of selectively enhancing NMDA receptor activity in this key brain region have yet been approved for human use. Studies indicate that prodromal and early-in-disease schizophrenic patients have elevated brain glutamate levels compared to healthy controls and ultra-high-risk patients who do not become psychotic. Alterations in NMDA receptor-mediated excitation of GABAergic neurons indicate that schizophrenia is associated with dysfunctional glutamatergic systems in the prefrontal cortex and limbic regions of the brain. One approach has been to target the glutamatergic system using pomaglumetad methionil, a potent and highly selective orthosteric metabotropic glutamate receptor (mGluR) 2/3 agonist, but alternative approaches directed at group III mGluRs are also currently studied in preclinical models of schizophrenia.

Preclinical research suggests that by reducing glutamate release, pomaglumetad methionil normalizes heightened glutamate activity in cortical pyramidal neuron. While pomaglumetad methionil was reported to display beneficial effects on both the positive and the negative symptoms of schizophrenia in initial clinical trials, positive results were not obtained in phase III studies. Analysis of the clinical data suggests that pomaglumetad methionil is most efficacious in early-in-disease schizophrenics (<3 years’ duration) with a known hyperactive glutamatergic pathophysiology. It is anticipated, therefore, that new antipsychotics acting on the mGluR2/3 will be developed to treat schizophrenic patients in an early phase of the illness with the hope of slowing disease progression and improving prognosis.

The dopamine D3 receptor (D3R) is another pharmacological target that appears to play a prominent role in the pathogenesis of schizophrenia. Unlike the D2R, which has been extensively studied with respect to the symptoms of schizophrenia, little is known about the extent to which changes in D3R and dopamine D4 receptor (D4R) activity contribute to the symptoms of this disorder. It is known that the molecular structure of D3R is very similar to that of D2R and D4R and that in a variety of animal species D2R and D3R share high homology and identity in the transmembrane regions, including the binding site. Such structural similarities make it difficult to design ligands that selectively interact with D3R. This, in turn, has compromised the ability to fully define the localization and functions of this site. A number of approved drugs that were believed to act primarily at the D2R recognition site have now been found to interact with the D3R as well. Cariprazine is the first example of a D3R partial agonist that occupies this receptor at doses that produce antipsychotic-like effects in preclinical animal models. Cariprazine displays higher affinity at D3R and a similar affinity at D2 and serotonin 2B (5-HT2B) receptors. In rodents, cariprazine reverses the deficit in novel object recognition that is caused by neonatal administration of phencyclidine or by subchronic phencyclidine exposure in adults. Preclinical and clinical data suggest that by selectively activating D3R, cariprazine may have a positive impact on the cognitive symptoms of schizophrenia. Cariprazine was approved in 2015 by the US FDA for the treatment of schizophrenia.

Another new approach proposed for the treatment of schizophrenia is the development of disease-modifying agents to prevent the full onset of schizophrenia and/or to slow its progression. Particular emphasis could be placed on those who are also heavy users of cannabis, as there is an increased risk for schizophrenia in those who abuse highly potent preparations of cannabis (so-called ‘skunk’ variants) containing a high percentage of delta-9-tetrahydrocannabinol (THC) (about 15%) with a scarcity of cannabidiol (CBD 0-1%). As a negative allosteric modulator of the cannabinoid 1 (CB1) receptor, CBD ameliorates the psychotogenic effect of THC and may possess antipsychotic properties. Given these findings, the CB1 receptor has been proposed as a new pharmacological target for the treatment of schizophrenia. Indeed, there have been reports that 800 to 1000 mg of cannabidiol per day safely reduces the signs and symptoms of schizophrenia. However, uncertainty remains about the mechanism of CBD action. Recently, Seeman reported that CBD, like aripiprazole, is a partial agonist at the D2R. Thus, CBD could be a first molecule of a class of antipsychotics that interact with both the CB1 and the D2R. Ideal candidates for clinical trials with such agents would be high-risk individuals to assess whether CBD dampens the acute psychotic symptoms and cognitive deficits associated with schizophrenia.
Okasha A.

Current status of clinical development of new psychotropic drugs for the treatment of neuropsychiatric disorders

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</table>

5-HT, serotonin; Aβ, amyloid beta; CB1, cannabinoid 1; D2R, dopamine 2 receptor; D3R, dopamine 3 receptor; mGlu, metabotropic glutamate; NMDA, N-methyl-D-aspartate

Leading atypical antipsychotics for the treatment of Schizophrenia patients in the US (25)
Administration of Drugs

With daily or twice-daily administration and generally favorable metabolic profiles, paliperidone, iloperidone, asenapine, and lurasidone offer new treatment options for schizophrenia, schizoaffective disorder, bipolar disorder, or anti-depressant augmentation. Given the number of patients who fail to respond or to tolerate existing antipsychotic medications, it is likely that some patients will find one of more of these newer oral drugs useful. However, at present they appear to represent an evolution of existing therapeutic approaches rather than a paradigm shift in the effectiveness and safety of antipsychotic medications. The brief (6-week) duration of most clinical trials, as well as the relatively short time on the market for these drugs, limits an overall analysis of their value relative to that of pre-existing drugs. 26

Relapse Prevention

Antipsychotics (FGAs and SGAs) are effective in relapse prevention and should be offered to a patient suffering from schizophrenia. FGAs and SGAs do not show general differences in reducing symptoms with long-term treatment. Some evidence is available to support the superiority of certain SGAs with regard to treatment discontinuation and relapse prevention. The reduced risk of inducing motor side effects (especially tardive dyskinesia) might favor certain SGAs. In the long-term treatment, where the secondary negative symptoms become less prominent, certain SGAs may have some advantages in reducing negative symptoms. For long-term therapy, tardive dyskinesia and metabolic side effects seem to have the greatest impact on the patient’s wellbeing and health; these side effects, among others, need to be monitored continuously and treated as soon as possible. The choice of the antipsychotic should be influenced by the same criteria recommended for starting a treatment (Good Clinical Practice). Maintenance treatment should be carried forward with the antipsychotic drug which led to the best response and which had the best individual side effect profile during the acute episode (Good Clinical Practice). Each antipsychotic selection procedure must be undertaken individually, respecting the patient’s experience with certain drug classes and the individual side effect profile. 27

Antipsychotics are commonly used in the elderly and present a different set of issues compared to the adult population as polypathology, polypharmacy, potential drug-drug interactions, and age-related pharmacokinetic and pharmacodynamics are important variables in selecting the drug dosages. Due to these multiple variables, antipsychotics doses are generally lower in the elderly versus the adult group. 28

Children and adolescents

Most antipsychotic drugs prescribed for children are also ‘off-label’ that include use in aggression and irritability in patients with autism, conduct disorders, and pervasive developmental disorders with an increasing frequency. 29 Compared to other medications, it was reported from the FDA Adverse Event Reporting System (FAERS) that the atypical agents aripiprazole, risperidone, and quetiapine were among the top 20 medications with adverse events. 30 Some countries have established nationwide antipsychotic safety monitoring programs for children and adolescents to provide system-wide safety information for clinicians. 31-33

Pregnancy

For the FGAs, the incidence of use decreased from 7.77 to 0.99 per 1000 pregnancies between 1995 and 2005. In contrast, SGAs use increased from 1.73 to 16.52 per 1000 pregnancies between 2000 and 2005. The specific warnings for atypical antipsychotic use during pregnancy were possible risk of abnormal muscle movements and withdrawal symptoms described for the mother and infant. 1

Dementia-related psychosis fatality

Psychosis associated with Alzheimer’s disease (PAD) forms part of the behavioral and psychological symptoms of dementia (BPSD) that include hallucinations, delusions, agitation, paranoia, combativeness, or depression. 34 Delirium was reported to be the third most common cause of psychosis in the elderly characterized by thought disturbance, poverty of thinking, irrationality, and usually visual hallucinations. 35 Major depression was reported to be the second most common diagnosis in the elderly accounting for most of the psychosis in this population. 36 Depression-related psychosis is typically characterized by themes of somatic troubles, persecution, guilt, and poor self-esteem. While regulatory agencies have yet to recognize BPSD as a disease, the diagnostic
criteria for the concept of PAD could be acknowledged. Yet, these patients can present the clinician with a complex, multifactorial, and fluctuating nature of psychotic symptoms.

In April 2005, the FDA issued a ‘black box’ warning for the SGAs and for the FGAs in June 2008 indicating an increased risk for death in persons with dementia. Data reported by the FDA noted a relative risk (RR) ratio of 1.47 and 1.68 for the SGAs and FGAs, respectively (US Food and Drug Administration 2014). A large meta-analysis study with 15 placebo-controlled clinical trials of 10-12 weeks in duration treated with the atypical antipsychotics in patients with dementia reported an increased odds ratio (OR) of 1.54 [95% C.I. 1.06-2.23, p=0.02] for death that was similar to the FDA findings with a number needed to harm (NNH)=87.39

The American College of Neuropsychopharmacology (ACNP) White Paper recommended these 11 steps: (1) determine the etiology of psychotic symptoms, (2) general treatment considerations, (3) shared decision-making, (4) identify specific target symptoms for treatment, (5) pharmacotherapy selection, (6) dose, (7) monitor for efficacy, (8) monitoring for safety, (9) educate patient and caregivers, (10) know when to discontinue or switch pharmacotherapy, and (11) coordinate care among the treatment team and family members.

Seizure

Psychotropic drugs and especially antipsychotics and some selected antidepressants reduce seizure threshold with a reported range of 0.1-1.5% in patients with psychiatric disorders versus the general population of 0.07-0.09 % with therapeutic doses.

Metabolic syndrome (MetS)

The MetS associated with SGAs is well known and associated with increased weight gain, diabetes, and hyperlipidemia. The MetS definition includes the presence of at least three of five parameters - blood pressure >130/85, fasting blood glucose (FBS) >110 mg/dL, fasting triglycerides >150 mg/dL, HDL <40 mg/dL (men) or <50 mg/dL (women), waist circumference >102 cm (men) or >88 cm (women). The prevalence of MetS in the general population was estimated to be about 23% compared to a higher incidence of 35-37% in patients with psychiatric disorders treated with SGAs.

Clozapine was slightly lower than olanzapine (0.74, 95% CI; 0.67-0.81) in weight gain, and both agents are well known to cause MetS. The underlying pathophysiology for antipsychotics to cause weight gain is complex, but thought to involve genetic variables that include the 5HT2C receptor system and leptin promoter gene variants MTHFR and MC4R genes. Additional factors reported were HRH1, BDNF, NPY, CNR1, GHRL, FTO, and the AMPK gene.

Another factor associated with antipsychotic-induced weight gain and MetS was age.

Cardiovascular

Torsades de Pointes (TdP)

A meta-analysis review of 15 antipsychotics revealed that the lowest OR occurred with lurasidone - 0.10 [95% CI, -0.21-0.01], a modest OR with ziprasidone of 0.41 [95% CI, 0.31-0.51], and the highest OR with sertindole 0.90 [95% CI, 0.76-1.02]. Other SGA agents had OR between lurasidone and ziprasidone. Sertindole and amisulpride had the highest OR; however, these two agents are not available in the USA. Clinicians should be concerned when the QTc interval is between 450 and 500 ms, and >500 ms has increased risk of developing TdP.

The risk of sudden cardiac death and antipsychotics in a Medicaid and dual eligible Medicare-Medicaid population of 459,614 patients from five different states reported that haloperidol and chlorpromazine had less favorable profiles. Among the SGAs, risperidone, quetiapine, and olanzapine had lower risks of sudden death.

Myocarditis

Clozapine (CLZ) has been known to cause myocarditis with the total number of cases that exceeds all other antipsychotics combined together. The incidence of CLZ-induced myocarditis ranges between 1 in 1000 and 1 in 10,000 patients with 213 cases (including 50 fatalities) that occurred in the first two months of therapy. CLZ dose was an independent factor. Recommendations for myocarditis detection includes
weekly ECGs, C-reactive protein (CRP), and troponin laboratory testing matched with vital signs and clinical symptomatology for the first four weeks of CLZ therapy.52-53 Afterward, vital signs and clinical symptoms can be closely followed for the next few months. If the patient’s heart rate becomes ≥120 bpm or increases by >30 bpm with symptoms of shortness of breath, chest pain, cough, and myalgia, laboratory CRP and troponin should be obtained and if needed a cardiology consult.1

**Hematologic**

Hematological disorders have been associated with both the FGAs and SGAs that include leukopenia, neutropenia, agranulocytosis, thrombocytopenia, and anemia.54 Drug-induced neutropenia usually occurs after 1-2 weeks of treatment and agranulocytosis typically appears 3-4 weeks with the exception of CLZ55. Of all the antipsychotics, CLZ is well recognized for hematological adverse events and extensively studied. The CLZ-induced agranulocytosis is estimated to occur at 1:10,000 with the weekly complete blood count (CBC) monitored for the first 18 weeks and then every two weeks afterward. In the USA, CBC occurs weekly for the first six weeks and then every two weeks.56 Regulatory agencies required CBC monitoring programs when CLZ was prescribed. The mechanism for CLZ-induced agranulocytosis remains unknown, but formation of a nitrenium cation metabolite from the flavin-containing monoxygenase-3 (FMO3) is suggested to be the initial step for hematological toxicity.54,55

The incidence of CLZ-induced agranulocytosis varied from 3.8% to 8% from four studies that included 130,133 patients. The mortality rate was 0.1-0.3% and case-fatality rate was 2.2-4.2%.56 Treatment for CLZ-induced agranulocytosis includes supportive therapy, use of antibiotics, and GM-CSF or G-CSF.54 The use of antibiotics significantly lowered the mortality of almost 80 to 5-10% in Western countries.55

**Prolactin-related adverse events**

The standardized mean difference (SMD) on prolactin effects for the various agents reported the lowest with aripiprazole 0.22 [95% CI, 0.46-0.03] and the highest with paliperidone 1.30 [95% CI, 1.08-1.51]. As D2 receptor antagonism is associated with HPRL, other endocrine effects are also included such as galactorrhea, amenorrhea, and gynecomastia.57

**Neuroleptic Malignant Syndrome (NMS)**

CLZ-induced NMS had less muscle rigidity than other antipsychotics and could be related to its pharmacologic profile of weak D2 but potent 5-HT receptor binding affinity.58 Additional factors reported that can increase NMS risk were use of polypharmacy (>2 antipsychotics) and rapid dose escalation.59,60 NMS symptom duration was reported to be about 7-10 days and longer when depot antipsychotics are involved. The time period for NMS onset was found to be 16% in the first 24h of antipsychotics therapy, 66% within the first week, and all cases by 30 days.61 NMS treatment involves the supportive therapy, use of benzodiazepines, dopamine agonists, and dantrolene.62

**Rhabdomyolysis (Rhab) and Acute Kidney Injury (AKI)**

Rhab ensues from damaged skeletal muscle fiber breakdown that results in the release of toxic products from myocytes into the systemic circulation. Rhab can occur independently of NMS. Besides in the adult population, Rhab was reported to occur in children and adolescents treated with antipsychotics, and only six cases of NMS occurred among the 26 Rhab reports.63 Significant elevations in serum CK are often present in patients with Rhab with laboratory findings >5,000 IU/L (median 9,600 IU/L), whereas in NMS, the serum CK was lower and ranged from 500 to 3,000 IU/L.64 However, later case reports included low to modest antipsychotic doses.65 Clinical symptoms that preceded recognition of Rhab were muscle and abdominal pain, generalized weakness, and dark urine.66 The pathophysiology of antipsychotic-induced Rhab may be associated with increased skeletal muscle membrane permeability involving the 5HT2A receptor antagonism.66 Blockade of the 5HT2A receptor may impact glucose uptake in the skeletal muscle increasing CK permeability leading to the muscle breakdown. An alternative mechanism involves the D2 receptor system where excessive muscle stiffness and rigidity also lead to muscle breakdown. At this time, Rhab has been reported with each antipsychotic agent except the newer agents of lurasidone, asenapine, and iloperidone as only time on the market for these agents will determine whether or not Rhab occurs.

**Gastrointestinal Hypomotility and Pancreatitis**

FGAs and SGAs with highly potent anticholinergic pharmacologic properties are thought to be the mostly likely agents to induce GI hypomotility.3-5 The mortality
rate was 27.4% and mostly due to bowel resection surgery. The risk factors for GI hypomotility included high CLZ dose or serum concentrations, concomitant anticholinergic use, and prior history of GI disturbances. An additional pharmacologic mechanism for CIGH was suggested to include the serotonergic (5HT) system with the 5HT2, 5HT3, and 5HT7 receptor subtypes that influence GI smooth muscle, colon transit, and visceral sensation. As antipsychotic-induced GI hypomotility is a very rare but potentially fatal adverse event, clinicians need to be especially aware of a patient reporting constipation that continues unabated and when other drugs with anticholinergic activity are included in the patient’s treatment.

Acute pancreatitis is another rare but potentially fatal adverse event due to antipsychotic and is listed in the USA Physician’s Desk Reference (PDR) for CLZ, OLZ, and RIS. The laboratory tests that assist in diagnosis are increased serum levels of amylase and lipase with the clinical symptoms of GI pain, nausea, vomiting, and high fever. The antipsychotics reported and their occurrences were CLZ 40%, OLZ 30%, RIS 16%, and haloperidol 12%. Concomitant valproate use was found in 23% of the cases with additional laboratory findings of hyperglycemia and metabolic acidosis. A data mining study using Bayesian analysis failed to detect a signal of disproportional of pancreatitis with these three atypical antipsychotics.

**Conclusion**

FGAs and SGAs continue to be used in the management of patients with various psychiatric conditions. The use of these agents in the elderly are ‘off-label’ as regulatory agencies have not yet recognized psychosis associated with Alzheimer’s disease as a psychiatric or medical disorder. When antipsychotics are prescribed in children and adolescents, their usage has expanded, in addition to the various psychiatric illnesses, to include other disorders such as autism. Clinicians must always balance the benefits and risks when prescribing these agents especially in the elderly, children, and adolescents. Appropriate individual patient safety monitoring for potential adverse events should be implemented by clinicians taking into consideration each antipsychotic pharmacologic and safety profile while matching the patient characteristics. Pharmacovigilance surveillance studies and data can provide important information on specific adverse event features, patterns of clinical symptoms, severity of the events, and where applicable, fatality rates of various antipsychotic agents. Healthcare systems at the local, regional, or national levels may wish to employ patient safety monitoring programs for antipsychotics based upon pharmacovigilance studies.

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Safety and Tolerability of Antipsychotics

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Mini editorial

Towards a Clinically Relevant Classification of Antipsychotic Drugs

Adib Essali

Abstract

Since the discovery of early antipsychotic drugs in the 1950s, there has been an on-going search for new drugs that are both more effective and more tolerable. A variety of classification schemes has been used over the years. Antipsychotic drugs have been classified according to chemical structure, potency, efficacy and side-effect profiles, and sites of neurotransmitter receptor action. They have been known as neuroleptics or major tranquilizers. They once were commonly classified on a spectrum of low potency to high potency. With the discovery of the 'a typicality' of clozapine, they were divided into typical (first generation) and atypical (second generation) antipsychotic drugs.

Debate continues about the comparative benefits and harms of typical and atypical antipsychotics and about the validity of classifying them into first and second-generation antipsychotics. Clozapine, the first second generation antipsychotic, was discovered in the 1960s and thus should be considered a first generation drug. The therapeutic effects of typical antipsychotics are no t much different from those of atypical antipsychotics. The long-term use of all antipsychotics is associated with similar side effects such as involuntary movement disorders and metabolic syndrome. The current paper reviews antipsychotic drugs nomenclature. It points out the need for a clinically relevant classification system.

Keywords: None

Declaration of interest: None

Antipsychotic drugs

Antipsychotic drugs are usually effective in relieving symptoms of psychosis. Evidence-based recommendations for prescribing anti-psychotic drugs have been advocated by the World Health Organisation. Antipsychotic drug treatment is a key component of schizophrenia treatment. The main effect of treatment with antipsychotics is to reduce the ‘positive’ symptoms, including delusions and hallucinations. There is a mixed evidence for the impact of antipsychotic use on negative symptoms (such as apathy, lack of emotional affect, and lack of interest in social interactions) or on the cognitive symptoms (disordered thinking, reduced ability to plan and execute tasks) of schizophrenia.

In the course of bipolar disorder, antipsychotic drugs are effective when used alone in acute manic and mixed episodes. The American Psychiatric Association and the UK National Institute for Health and Care Excellence recommend antipsychotics for managing acute psychotic episodes in schizophrenia or bipolar disorder, and as a longer-term maintenance treatment for reducing the likelihood of further episodes. It is a common practice to prescribe an antipsychotic and an antidepressant for psychotic depression and for treatment-resistant depression. In addition, antipsychotics have been used ‘off-label’ for obsessive-compulsive disorder, posttraumatic stress disorder, personality disorders, Tourette syndrome, autism and agitation in those with dementia.

Classification of antipsychotic drugs

The discovery of the antipsychotic properties of chlorpromazine and its launch in 1953 stimulated synthesis of similar compounds which were collectively named ‘the phenothiazine’. Other antipsychotic drug families were developed later on (Table 1).
Toward a clinically relevant classification of antipsychotic drugs

Table 1. Classification of antipsychotic drugs according to chemical family

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<th>Examples</th>
<th>Family</th>
<th>Examples</th>
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<td></td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td></td>
<td>Sultopride</td>
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<td>Cyamemazine</td>
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<td>Veralipride</td>
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<td>Amisulpride</td>
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<tr>
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<td>Remoxipride</td>
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<tr>
<td>Perazine</td>
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<td>Tricyclics</td>
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</tr>
<tr>
<td>Pericyazine</td>
<td></td>
<td>Asenapine</td>
<td></td>
</tr>
<tr>
<td>Perphenazine</td>
<td>Clozapine (a dibenzodiazepine)</td>
<td>Loxapine</td>
<td></td>
</tr>
<tr>
<td>Pipotiazine</td>
<td></td>
<td>Clozapine (a dibenzodiazepine)</td>
<td>Loxapine</td>
</tr>
<tr>
<td>Prochlorperazine</td>
<td></td>
<td>Olanzapine (a thiobenzodiazepine)</td>
<td>Loxapine</td>
</tr>
<tr>
<td>Promazine</td>
<td></td>
<td>Quetiapine (a dibenzothiazepines)</td>
<td>Loxapine</td>
</tr>
<tr>
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<td></td>
<td>Zotepine</td>
<td></td>
</tr>
<tr>
<td>Prothipendyl</td>
<td></td>
<td>Benzisoxazoles/benzisothiazoles</td>
<td>Ziprasidone</td>
</tr>
<tr>
<td>Thioproporazine</td>
<td></td>
<td>Iloperidone</td>
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<tr>
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<td></td>
<td>Lurasidone</td>
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<td></td>
<td>Paliperidone</td>
<td></td>
</tr>
<tr>
<td>Triflupromazine</td>
<td></td>
<td>Perospirone</td>
<td></td>
</tr>
<tr>
<td>Acepromazine</td>
<td></td>
<td>Risperidone</td>
<td></td>
</tr>
<tr>
<td>Thioanthenes</td>
<td>Chlorprothixene</td>
<td>Phenylpiperazines/quinolinones</td>
<td>Ziprasidone</td>
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<tr>
<td>Clopentixol</td>
<td>Aripiprazole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flupentixol</td>
<td>Brexpiprazole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thiopentixene</td>
<td>Cariprazine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zuclopentixol</td>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butyrophenones</td>
<td>Blonanserin</td>
<td></td>
<td></td>
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<tr>
<td>Benperidol</td>
<td>Pimavanserin</td>
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<td>Bromperidol</td>
<td>Sertindole</td>
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</tr>
<tr>
<td>Droperidol</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Haloperidol</td>
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</table>

Different nomenclatures have been used over the years to denote antipsychotic drugs. The terms tranquilizer, ataraxic and neuroleptic were widely used in the 1950s. The term tranquilizer was first used in 1953 to differentiate reserpine from older sedative drugs. The term ‘ataraxy’ was coined to describe the observed psychic indifference and detachment in patients treated with chlorpromazine. Tranquilizers and ataractics that were used to treat psychoses were labelled ‘major tranquilizers’ or ‘major ataractics’ and distinguished from the ‘minor tranquilizers’ or ‘minor ataractics’, which were used to treat neuroses.

Antipsychotic drugs were commonly classified on a spectrum of low potency to high potency, where potency referred to the ability of the drug to bind to dopamine receptors. High-potency antipsychotics such as haloperidol had doses of a few milligrams and caused less sleepiness and calming effects than low-potency antipsychotics such as chlorpromazine, which had dosages of several hundred milligrams. High-potency antipsychotics had a greater propensity for extrapyramidal side effects (EPS) than low-potency antipsychotics.

Early studies into the mechanism of action of antipsychotic drugs demonstrated an inverse relationship between affinity for the dopamine D2 receptor and the dose for antipsychotic effect. While dopaminergic D2 antagonism in the mesolimbic area of the brain was thought to underlie antipsychotic effect, preferential binding to D2 receptors in the nigrostriatal pathway led to EPS. The association between clinical antipsychotics efficacy and EPS was behind coining the term 'neuroleptic’ (i.e., affecting the nervous system) in 1955.
Dopaminergic D2 antagonism, characterized by a tendency to cause catalepsy in laboratory animals, was employed in developing antipsychotic drugs until the discovery of clozapine’s effectiveness for refractory schizophrenia. The fact that clozapine is a weak dopaminergic D2 antagonist has led to exploring other mechanisms for the antipsychotic effect, such as serotonergic 5HT2A antagonism. It has also led to clozapine being categorized as ‘atypical’ antipsychotic. Consequently, antipsychotics already in use became known as ‘typical’, ‘conventional’, ‘classical’ or ‘first-generation’ antipsychotics. Antipsychotic drug development focused thereafter on mimicking and improving on the therapeutic effects of clozapine. The resulting ‘atypical’ or ‘second-generation’ antipsychotics were classified according to their pharmacological properties to serotonin-dopamine antagonists, multi-acting receptor-targeted antipsychotics (MARTA), and dopamine partial agonists.11

Second-generation antipsychotic drugs were initially claimed to be more effective against 'negative' symptoms of schizophrenia, but this has not been convincingly proven as a class effect.12-13 It is unclear whether the atypical (second-generation) antipsychotics offer advantages over older, first generation antipsychotics.8, 12-17 A major independent study (the CATIE project18) demonstrated that the typical antipsychotic perphenazine was not different from the atypical antipsychotics risperidone, quetiapine, and ziprasidone in terms of efficacy. Clozapine is an exemption because it is effective in refractory schizophrenia.20,21 However, clozapine was discovered in the 1960s and may be considered a first generation antipsychotic.

The claim that second-generation antipsychotics caused fewer adverse effects than first-generation antipsychotics is also questionable.14, 21 While second-generation antipsychotics may cause less EPS, they are more commonly associated with adverse metabolic effects. Second generation antipsychotics are also not different from first generation antipsychotics in terms of compliance.19

Subsequently, it has been suggested that designating antipsychotics as typical and atypical, or first-generation and second-generation, may be of limited value: it probably exaggerates differences between groups and overstates similarities between members of each group. This suggestion is supported by the results of a meta-analysis of 212 randomized clinical trials involving 43,049 patients and studying the comparative efficacy and tolerability of 15 first and second generation antipsychotic drugs in schizophrenia.19 Small but robust differences were seen in efficacy (Figure 1), challenging the dogma that the efficacy of all antipsychotic drugs is the same.22 It is noticeable that the second-generation drugs iloperidone and lurasidone were less efficacious than the first generation drugs haloperidol and chlorpromazine (Figure 1).

Figure 1. Efficacy of typical and atypical antipsychotic drugs: effect size expressed as standardized mean differences (SMD) with their 95% confidence intervals
Antipsychotic drugs differed substantially in side effects. For instance, the odds of developing EPS were highest for haloperidol but were not limited to first generation antipsychotic drugs. There was a significant association of EPS with the second-generation antipsychotics Ziprasidone, Paliperidone, Risperidone, Lurasidone and Zotepine (Figure 2). Chlorpromazine did not produce significantly more EPS than did most second generation antipsychotics.

![Figure 2. The odds ratios versus placebo of developing EPS: EPS were most likely to be associated with haloperidol but were not limited to typical antipsychotic drugs](image)

The authors concluded, “Antipsychotic drugs differ in many properties and can therefore not be categorized in first generation and second-generation groupings”. Integrating the available evidence resulted in seven hierarchies that may help clinicians to adapt choice of antipsychotic drug to the needs of individual patients. These hierarchies were comparative efficacy, risk of discontinuation, and major side effects of antipsychotic drugs (weight gain, EPS, prolactin increase, QTc prolongation, and sedation). The authors postulated that these hierarchies should lead to modification of clinical practice guidelines.

**Conclusion**

The classification of antipsychotic drugs into first-generation and second-generation groupings has recently been challenged. It has been suggested that hierarchies in different domains may replace it. This suggestion has started to impact mental health policy makers and clinical practice guidelines. NICE has recently revised its recommendation favoring atypicals, to advise that the choice should be an individual one based on the particular profiles of the individual drug and on the patient's preferences. It no longer distinguishes between first-generation and second-generation antipsychotics, with the exception of clozapine.

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Toward a clinically relevant classification of antipsychotic drugs

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Liaison psychiatry

Patterns of Referrals to Consultation-Liaison Psychiatry in a Tertiary Care Hospital in Oman

Houda Alqataybi, Mandhar Almqbali, Waddah Alamai Asiri, R.Martin, Hamed Alsinawi

أعمال التحويلات إلى الطب النفسي التواصلی في مستشفى للرعاية الثالثة بسلطنة عمان: دراسة مستعرضة

Abstract

Background: Consultation-liaison (C-L) psychiatry emerged to integrate mental health with mainstream medicine. The growing and accumulative evidence in this field supports C-L psychiatry as a cost-effective service for shortening the length of hospital stays in addition to early detection and treatment of mental illnesses. Objective: The current study is the first in the Sultanate of Oman to review all patterns of referrals to the C-L team from various in-patient departments at Sultan Qaboos University Hospital. Methods: All patients referred from the medical and surgical wards from May 2015 to December 2015 were evaluated for inclusion to the study. Data collection recorded patient demographics, reason for admission, and presence of medical or surgical co-morbidity, reason for referral to C-L psychiatry and whether psychiatric diagnosis presented prior to referral. Data were analyzed using descriptive statistical methods. Results: N=104 patients were referred to C-L psychiatry over the indicated period of the study. The majority of referrals were from the acute medicine unit (32.7%), neurology unit (15.4%) and surgery department (9.6%). The most common reasons for referral were depressed mood (28.8%) and abnormal behavior (24%). Major depressive disorder (30.8%) was the most commonly diagnosed psychiatric disorder followed by substance use disorder (8.7%). Conclusion: C-L psychiatry is an important utility for general hospitals to ensure high-standard quality of care is provided to patients. Additionally, C-L psychiatrists should play a significant role in sensitizing other health professionals toward detecting early signs of mental disorders.

Keywords: Consultation-liaison psychiatry, mental disorders, Sultan Qaboos University hospital, Oman

Declaration of interest: None

Introduction

Consultation-liaison (C-L) psychiatry is a relatively new sub-specialty in psychiatry, which developed as a way to integrate mental health with mainstream medicine.\(^1\)\(^2\) Studies have shown that 27% of patients admitted to medical wards displayed symptoms of significant psychiatric disturbances.\(^3\) The growing and accumulative evidence in this field supports C-L psychiatry as a cost-effective service, which can shorten the length of hospital stays in addition to enabling early detection and treatment of mental illnesses.\(^4\)\(^5\)

Psychiatric disorders, such as major depressive disorder and somatoform disorders, are often not identified by doctors working in the medical and surgical wards. This can lead to a higher demand on available health care resources. Moreover, underdiagnosed psychiatric disorders can impair the patients’ quality of life.\(^6\)\(^8\)

In the face of high psychiatric co-morbidities among patients admitted to the medical and surgical wards and, despite the evidence of its effectiveness, referral to C-L psychiatry remain low.\(^9\) A recent systematic review (Chen, et al. 2016) concluded that the interplay between factors related to the health system, referrer and patients have significant influence on the referral rate to C-L psychiatry. For instance, positive attitudes of doctors working in general hospitals toward C-L psychiatry and also having dedicated C-L psychiatry service increases the likelihood of referral to C-L psychiatry. On the other hand, difficulties recognizing psychiatric co-morbidities in physically unwell patients together with mental health stigma are considered barriers against referral to C-L psychiatry.\(^10\)

Sultan Qaboos University Hospital is a general hospital with a 450 bed capacity and 13 medical and surgical specialties. Its C-L psychiatry team was established in
2013 to receive inpatient referrals from various hospital departments. The team comprises a consultant psychiatrist, senior specialist and two senior psychiatry residents. The current study aims to examine the pattern of referrals to the C-L psychiatry team.

Methods

The current study uses a descriptive cross-sectional design conducted in a tertiary care hospital in Muscat, Oman. A record of all patients referred to C-L psychiatry from the medical and surgical wards was maintained from May 2015 to December 2015.

All patients referred to C-L psychiatry and evaluated when in-patients in the medical or surgical wards were included in the study. Exclusion criteria included insufficient documented details as to the reason for referral and inadequate psychiatric notes without clinical diagnosis of mental disorder or impression. Those patients who were given an appointment in the C-L psychiatry clinic were not included in the final analysis.

Electronic medical records, kept in the Track-care system, were reviewed for all included patients. A data collection sheet documented patients’ demographic features, medical and surgical co-morbidity, the reason for admission, the reason for referral to C-L psychiatry, the clinical diagnosis of mental disorder or impression of the C-L psychiatry and whether if any intervention was carried out. The Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (DSM 5; American Psychiatric Association, 2013) criteria were used for diagnosis of mental disorders. All patients included in the study were evaluated by a consultant in C-L psychiatry. Referrals to C-L psychiatry were either from the medical or surgical wards. Medical wards include patients admitted under the service of acute medicine, neurology, hematology, oncology, cardiology and gastrology units. Surgical wards include patients admitted under the service of general surgery, urology, orthopedics, neurosurgery, obstetrics and gynecology, otolaryngology and maxillofacial units.

Data management

The Statistical Package for the Social Sciences version 22 (SPSS, V22.0) was used for data analysis. For descriptive purposes, categorized variables were described as percentages with confidence intervals. Continuous variables were presented as means with standard deviation or median with inter-quartile range. To assess relationships between variables, univariate analysis chi-square, t-test, ANOVA were used.

Ethics

Ethical approval was granted by the Research Ethics Committee of the College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman.

Results

A total of 104 patients (53% women, 47% men) were referred to the C-L psychiatry over the indicated period of the study. No referrals were excluded from the study. The mean age of the referred patients was 42 years with a range of 12-90 years (SD: 18.8). Table 1 shows the demographic characteristics of all patients.

<table>
<thead>
<tr>
<th>Table 1. Patients’ demographic characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, years</strong></td>
</tr>
<tr>
<td>&lt;18</td>
</tr>
<tr>
<td>19-59</td>
</tr>
<tr>
<td>&gt;60</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td>Men</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
</tr>
<tr>
<td>Single</td>
</tr>
<tr>
<td>Married</td>
</tr>
<tr>
<td>Divorced</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Unknown</td>
</tr>
</tbody>
</table>
**Source of referrals**

The average number of referrals per day to the C-L psychiatry during the study period was 0.58. The most common source of referrals to C-L psychiatry was the medical wards (70%) with surgical wards providing the remaining 30% of referrals. From the medical ward, the acute medicine unit comprised the highest percentage of total referrals (30.2%) followed by neurology unit (15.4%). The general surgery unit contributed to 9.6% of the total referrals. Table 2 shows the rate of referrals to the C-L psychiatry for each unit.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Percentage (number of patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Medicine</td>
<td>32.7 (34)</td>
</tr>
<tr>
<td>Neurology</td>
<td>15.4 (16)</td>
</tr>
<tr>
<td>Surgery</td>
<td>9.6 (10)</td>
</tr>
<tr>
<td>Hematology</td>
<td>8.7 (9)</td>
</tr>
<tr>
<td>Obstetrics and gynecology</td>
<td>8.7 (9)</td>
</tr>
<tr>
<td>Oncology</td>
<td>7.7 (8)</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>4.8 (5)</td>
</tr>
<tr>
<td>Cardiology</td>
<td>3.8 (4)</td>
</tr>
<tr>
<td>Gastrology</td>
<td>1.9 (2)</td>
</tr>
<tr>
<td>Urology</td>
<td>1.9 (2)</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>1.9 (2)</td>
</tr>
<tr>
<td>Maxillofacial</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Child health</td>
<td>1 (1)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100 (104)</td>
</tr>
</tbody>
</table>

**Reason for referral**

The most common reason for referral to C-L psychiatry was depressed mood (30.8%) followed by behavioral disturbances (21.8%) and risk assessment (13.5%). Approximately 11% of patients were referred for cognitive assessment and 10% for management of substance related disorders. Table 3 summarizes the most common reasons for referral to C-L psychiatry.
Patterns of Referrals to Consultation-Liaison Psychiatry in a Tertiary Care Hospital in Oman

Table 3. Most common reasons for referral to C-L psychiatry

<table>
<thead>
<tr>
<th>Reason of Referral</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed mood</td>
<td>30.8</td>
</tr>
<tr>
<td>Behavioral disturbance</td>
<td>21.8</td>
</tr>
<tr>
<td>Risk assessment</td>
<td>13.5</td>
</tr>
<tr>
<td>Cognitive assessment</td>
<td>11</td>
</tr>
<tr>
<td>Management of substance related disorders</td>
<td>10</td>
</tr>
<tr>
<td>Psychotic symptoms</td>
<td>2.8</td>
</tr>
<tr>
<td>Pseudo-seizure</td>
<td>1.9</td>
</tr>
<tr>
<td>Other (poor compliance to diabetic medication, capacity assessment, insomnia, left lower limb weakness and unilateral blindness)</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Psychiatric diagnoses

Major depressive disorder was the most frequent psychiatric diagnosis formulated by the C-L psychiatry (32.7%) followed by substance related disorder (9%). Dementia and delirium were equally diagnosed among the sample constituting 6% for each diagnosis. Out of the total referrals, 23% of the patients were not found to have evidence of any mental disorder.

Discussion

The current study is the first to explore the patterns of referrals to the service of C-L psychiatry in Oman. The majority of patients included in the study were aged between 19-59 years, which can be explained by the dominance of this age group within the Omani population (National Center for Statistics and Information 2017, Oman). Furthermore, Rastogi et al. suggested that this age group is at higher risk of daily stress and thus more likely to be referred to C-L psychiatry.11 On the other hand, few patients aged above 60 years and below 12 years were referred to C-L psychiatry during the seven month period of the study. This might suggest difficulties in recognizing psychiatric symptoms in this age group by general doctors.7 The high rate of referrals to C-L psychiatry among adult patients compared to young and old-age patients found in this study is consistent with many previous studies.12-14

By analyzing the sources of referrals to C-L psychiatry, the current study found that two-thirds had originated from the medical wards. This finding is consistent with similar studies, which showed that 54% to 65% of patients were referred from medical wards.12, 15 High occupancy rates in medical wards and frequent patient turnover may contribute to the increased rate of referral to C-L psychiatry. Additionally, increased psychiatric comorbidities in patients admitted to the medical wards and somatic presentation of many psychiatric disorders merit referral for psychiatric evaluation.16 Interestingly, Alhammad et al. found that physicians, especially nephrologists, have a better attitude toward C-L psychiatry and thus may request more consultations.17

The neurology unit was the second most common source of referral after the acute medicine unit. This might be a reflection of increased psychiatric comorbidities in patients with neurological disorder. Stroke, Parkinson’s disease, multiple sclerosis and epilepsy are associated with increased risk for psychiatric disorders, especially depression.18 Moreover, studies have shown that 30% of patients seen by a neurologist have either no neurological basis for their illness or their symptoms are out of proportion for the cause.18-19 Such patients may require psychiatric evaluation to work out possible underlying psychiatric etiology.

In the current study, evaluation of depressed mood was the most common reason for referral to C-L psychiatry. This could be explained by a high prevalence of depression in hospitalized patients (30%).20 Furthermore, symptoms of depression may be easier to be recognize than other psychiatric disorders. Correspondingly, major depressive disorder was the commonest diagnosis formulated by the C-L team. This finding was in agreement with several previous studies.21-22

In contrast to studies from Europe and the United States, organic brain disorder was the most common diagnosis found in studies from India and China.23-24 Types of patients included in these studies and the severity of their...
illnesses may explain this difference. Tekkalaki et al. studied 135 referrals to C-L psychiatry in a governmental hospital in India and found that 20% of patients were diagnosed with organic brain disorder compared to 15% of patients with major depressive disorder. The study suggested that organic brain disorder is likely the most common diagnosis for general doctors in the western world to manage rather than refer on to C-L psychiatry. In addition, differences in the settings of the studies may have contributed to this discrepancy in the common diagnosis made by C-L psychiatry. For instance, studies conducted in hospitals providing care to patients with trauma are likely to yield delirium and organic brain disorders as the most common diagnoses formulated by C-L psychiatry.23

The total referral rate to C-L psychiatry of 0.58 per day found in the current study is relatively low compared to the bed capacity of Sultan Qaboos University Hospital and the wide catchment area of the hospital. This finding is broadly in keeping with past studies.25-26 Low referral rates may result from difficulties recognizing psychiatric symptoms by non-psychiatrists and being unaware of the referral procedure to the C-L psychiatry. Carreca et al. (2017) analyzed 880 referrals to C-L psychiatry in five general hospitals in Italy. Only 1.08% of patients visiting these five hospitals were referred to C-L psychiatry. Stigma related to mental disorders and absence of C-L psychiatry services in general hospitals are major barriers against referral to C-L psychiatry.26

Future studies are required to explore the reasons for low referral rates to C-L psychiatry. These studies should focus on individual departments and their associated units. Also, the stigma of mental disorders among physicians and surgeons requires further research as well as research into the attitude of health professionals toward patients with mental disorders.

The service of C-L psychiatry is developing rapidly and extending beyond sole inpatient consultation. For example, in some general hospitals in France, C-L psychiatry has been integrated with emergency psychiatry for systemic screening of patients attending the emergency department. Moreover, the C-L psychiatry team is responsible for coordinating the combined management when multidisciplinary care is required for patients. In France, C-L psychiatry had reached the prisons to provide specialized psychiatric care and established crisis intervention units outside hospitals. Furthermore, mobile emergency units for C-L psychiatry were initiated to provide home care.27

**Conclusion**

C-L psychiatry is an important utility for general hospitals in order to ensure a high-standard quality of care is provided to patients. Additionally, C-L psychiatrists should play a major role in sensitizing other health professionals in the detection of early signs of mental disorders.

**Limitation**

As this relates to the current study, a larger sample size and longer period of data collection may have yielded more representative results. Using a reliable and valid tool to study the patterns of referrals to C-L psychiatry will make the comparison with other studies more feasible. However, the tool in use was still under development required validation; and it is also the case that different studies have used different methodological techniques.

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Patterns of Referrals to Consultation-Liaison Psychiatry in a Tertiary Care Hospital in Oman

الملخص

المقدمة وغرض البحث: يعتبر الطب النفسي التواصلي من التخصصات الحديثة نسبيًّا والتي تُعنى بمعايير المرضى المحولين من الأقسام الباطنية والجراحية لأسباب نفسية. وقد أثبتت الدراسات السابقة أن الطب النفسي التواصلي يلعب دوراً فاعلاً في تقليل مدة التوقيع في المستشفيات العامة وانتشار الأمراض النفسية في مرحلة مبكرة مما يساعد في تعزيز الرعاية الطبية للمريض. تهدف هذه الدراسة لمراجعة كافة التحويلات إلى الطب النفسي التواصلي بغرض دراسة تأثير هذه التحويلات من حيث سبب التحويل ومصدره ونتائج الأمراض. الطريقة: أُجريت هذه الدراسة المعتمدة في مستشفى جامعة السلطان قابوس وشملت 104 مريضًا. تم تحويلهم خلال السنة عشرة للمريض وتمت مراجعة البيانات الطبية لجميع المرضى من خلال النظام الإلكتروني وتسجيل البيانات الديموغرافية لهم وسبب التحويل ومصدره وتشخيصه من قبل فريق الطب النفسي التواصلي. النتائج: بينت الدراسة أن مصدر معظم التحويلات كان وحدة الأمراض الباطنية (32.7%) وبعثتها وحدة الأعصاب (15.4%) ثم قسم الجراحة (9.6%). كذلك أفادت الدراسة أن السبب الأكثر شيوعاً لإصدار التحويل لقسم الطب النفسي التواصلي كان اكتساب الزواج (28.8%) ثم الأضطربات السلوكية (24%). الاستنتاج: يلعب الطب النفسي التواصلي دوراً بارزاً في التقييم المتكامل للمريض المنوم في الأدجحة العامة، ويجب أن يعمل المختصون في هذا المجال بنشر الوعي عن الطب النفسي بين أطباء الباطنية والجراحين وكيفية اكتشاف العوارض النفسية مختلفة مظاهرها وأشكالها والتي قد تستدعي معالجة من قبل الطبيب النفسي وعدم الأكيدة بعلاج المريض من الناحية البدنية فحسب.

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Relation between Stunting in a Sample of Primary School Children and their Scholastic Achievement and Behavior in Ismailia City

Naira M. Omar, Lamiaa Fiala, Mirella Youssef Tawfik, Khaled Abd El Moez

Abstract

Background: Stunting is associated with poor development, cognition and school performance in early childhood compared with non-stunted children through late adolescence. Stunted children have impaired behavioral development in early life and are found to be less likely to enroll at school or enroll late or tend to achieve lower grades than non-stunted children. Furthermore, stunted children are more apathetic, display less exploratory behavior and have altered physiological arousal. Aim: The present study aims to improve child health through assessing the relation between stunted children and their scholastic achievement and behavior. Method: As a case-control design, the current study was conducted with primary school children in the 5th and 6th grades in Ismailia. The study comprised N=204 students (n=102 stunted children, n=102 controls); n=81 were from public schools and n=21 from private schools. Data was collected through measuring the height of students and comparing measurements to World Health Organization (WHO) growth charts. A questionnaire identifying socio-demographic characteristics was given to parents. A teacher’s child behavior checklist (teacher report form) was completed by the master teachers to rate the academic performance and behavioral difficulties of the selected children. Results: Mothers with low levels of education, big family size and lastly ranked child order were found more among stunted students compared to non-stunted children. In addition, poor scholastic achievement and behavioral disorders occur more frequently among stunted children compared with non-stunted students. Conclusion: Stunting is related to poor scholastic achievement and behavioral disorders.

Key words: Stunting, children, scholastic achievement, behavioral disorders

Conflict of interest: None

Background

A stunted child is defined as being too short for his/her age when height for age is below minus two standard deviations (-2SD) from the mean of the reference population, using WHO child growth standards which can be applied to all children everywhere irrespective of ethnicity, socioeconomic status and type of feeding. Stunting is considered to be a major public-health problem in low and middle-income countries because it is associated with increased risk of childhood mortality. Stunting is an indicative of chronic under-nutrition, which gives a picture of past nutritional history, and the environmental and socioeconomic circumstances. Stunting has long-term effects on individuals and societies, including diminished cognitive and physical development, poor health, decreased productive capacity, and an increased risk of degenerative diseases, such as diabetes.

It is estimated that more than 200 million school age children are stunted and underweight and if no action is taken at this rate, by 2020 about one billion schoolchildren will be growing up with growth and development abnormalities. This age group needs more attention and care for the physical and mental development since they are vulnerable because of their rapid growth rate.

The height-for-age data from the 2014 Egypt Demographic and Health Survey (EDHS) among Egyptian children, based on comparisons with the WHO child growth standards population, indicates that 21% of children under age five were stunted and 10% were severely stunted, stunting was markedly higher in Upper Egypt at 26% compared to other areas.
The determinants of stunting are inadequate nutrient intake, infections, maternal education, socioeconomic status, unsafe water and poor childcare. There is increasing international effort to prevent stunting, such as Millennium Development Goals and Sustainable Development Goals.8

Stunting (chronic protein-energy-malnutrition) contributes to structural and functional pathology of the brain. Structurally such as tissue damage, growth retardation, disorderly differentiation, reduction in synapses and synaptic neurotransmitters, delayed myelination reduces overall development of dendritic arborization of the developing brain. In addition, deviations in the temporal sequences of brain maturation disturb the formation of neuronal circuits. Functionally, there is long lasting cognitive impairment.9 Academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals. School systems mostly define cognitive goals that either apply across multiple subject areas (e.g. critical thinking) or include the acquisition of knowledge and understanding in a specific intellectual domain (e.g. numeracy, literacy, science, history).10 Scholastic achievements can be influenced by multiple factors like nutritional status, demographics and socio-economic factors.11

Stunting in early childhood has adverse effects on Central Nervous System (CNS) development and function such as antisocial behavior problems and personality disorders.12 The best global indicator of children’s well-being is growth. Assessment of growth is the single measurement that best defines the nutritional and health status of children, and provides an indirect measurement of the quality of life of the entire population.13 In addition, data regarding the stunting effects on scholastic achievement and behavior in Egypt is not available. Therefore, the present study aimed to assess the relation between stunting in primary school children and their scholastic achievement and behavior in Ismailia.

**Objectives**

The present study contributes to child health improvement through assessing the relation between stunting in primary school children and their scholastic achievement and behavior in Ismailia.

**Study objectives are:**

1) To describe the socio-demographic characteristics of stunted and non-stunted primary school children in Ismailia.
2) To compare the scholastic achievement among stunted and non-stunted primary school children in Ismailia.
3) To compare the behavior according to the teacher’s child behavior check list (teacher report form) among stunted and non-stunted primary school children in Ismailia.

**Methods**

**Design**

The present study is a case-control study.

**Setting**

The present study was conducted in primary schools in Ismailia.

**Population**

To achieve study objectives two groups were selected:

1. **Group 1 (study):** Primary school children (5th and 6th grades) who are stunted (height for age is below minus two standard deviations (-2SD) from the median of the reference population, using WHO Child Growth Standards) in public and private schools in Ismailia.
2. **Group 2 (control):** Primary school children (5th and 6th grades) who have normal height for age matched with stunted children for age and class and were selected randomly.

The following criteria were defined:

- Inclusion criteria for studied children: stunted primary school children (5th and 6th grades) in public and private schools in Ismailia.
- Exclusion criteria for children: History of head trauma, brain surgery, epilepsy or type-1 diabetes mellitus.
- Inclusion criteria for teachers: Teachers of primary school children (5th and 6th grades) should know the student for two month in order to complete the questionnaire.
**Sample Size**

The sample size comprised 102 students per group, giving a total sample size of 204 students.

**Sampling procedure**

In Ismailia, there are 44 public schools (9557 students) and 18 private schools (2573 students). A proportionate sample of the students was taken from both public and private schools resulting in 81 students from public and 21 from private schools. Through simple randomization, five (10%) of the public schools and three (10%) of the private schools were selected. All students of 5th and 6th grade in the eight schools were screened for stunting using a measuring tape to mark the height and compare to WHO growth charts. For each selected stunted student, another normal student from the same class was selected through simple randomization. There are differences between public and private schools, e.g. classroom size, budget, certified teachers, received personalized attention. This highlights the difference in educational attainment between the rich and the poor.

**Ethical consideration**

The current study was reviewed by the Institutional Review Board (IRB)

**Data collection Tools**

I. Height measurements were in centimeters and plotted on the WHO chart.

II. A self-administered questionnaire was completed by the parent of each student which included:

- Socio-economic and demographic data: age, gender, number of family members, child order and educational level of the children's parents.

III. Teachers’ perspectives were reported via the Child Behavior Checklist (teacher report version).14

**Purpose**

The purpose was to obtain teachers’ perceptions of each child’s academic performance, adaptive functioning and problem behavior over the past two months in a standardized format.

**Results**

Table 1 shows the socio-demographic characteristics of studied students in the current study. Mothers with low levels of education, big family size and lastly ranked child order were more evident among stunted students (20%, 17% and 22%) compared to non-stunted (5%, 12% and 3%). The differences between the two groups regarding previous variables were found to be statistically significant difference (P<0.05).

**Table 1.** Socio-demographic characteristics of stunted and non-stunted students

<table>
<thead>
<tr>
<th>Socio-demographic characteristics</th>
<th>Stunted N=102</th>
<th>Non-stunted N=102</th>
<th>Total N=204</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Boy</td>
<td>44 (43%)</td>
<td>44 (43%)</td>
<td>88 (44%)</td>
<td>1.000</td>
</tr>
<tr>
<td>• Girl</td>
<td>58 (57%)</td>
<td>58 (57%)</td>
<td>116 (56%)</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Public</td>
<td>81 (79%)</td>
<td>81 (79%)</td>
<td>162 (79%)</td>
<td>1.000</td>
</tr>
<tr>
<td>• Private</td>
<td>21 (21%)</td>
<td>21 (21%)</td>
<td>42 (21%)</td>
<td></td>
</tr>
<tr>
<td>Age in years</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.36 ± 0.454</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father’s education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Illiterate</td>
<td>8 (8%)</td>
<td>(7%)</td>
<td>15 (7%)</td>
<td>0.868</td>
</tr>
<tr>
<td>• Primary</td>
<td>17 (17%)</td>
<td>16 (16%)</td>
<td>33 (16%)</td>
<td></td>
</tr>
<tr>
<td>• Secondary</td>
<td>42 (41%)</td>
<td>38 (37%)</td>
<td>80 (39%)</td>
<td></td>
</tr>
<tr>
<td>• University</td>
<td>35 (34%)</td>
<td>41 (40%)</td>
<td>76 (37%)</td>
<td></td>
</tr>
<tr>
<td>Mother’s education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Illiterate</td>
<td>20 (20%)</td>
<td>5 (5%)</td>
<td>25 (15%)</td>
<td>0.002*</td>
</tr>
</tbody>
</table>
Table 2 shows the frequency of scholastic achievement parameters in stunted and non-stunted students. There is a statistically significant difference in academic performance, hardworking, learning and happiness between stunted students and non-stunted students, which means that there is poor academic performance, hardworking, learning and there being less happiness among stunted students compared to non-stunted students.

<table>
<thead>
<tr>
<th>Scholastic achievement parameters</th>
<th>Stunted (N=102)</th>
<th>Non-stunted (N=102)</th>
<th>Total (N=204)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private teaching lessons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25 (25%)</td>
<td>23 (23%)</td>
<td>48 (24%)</td>
<td>0.869</td>
</tr>
<tr>
<td>Yes</td>
<td>77 (75%)</td>
<td>79 (77%)</td>
<td>156 (76%)</td>
<td></td>
</tr>
<tr>
<td>Grade repetition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>92 (90%)</td>
<td>96 (94%)</td>
<td>188 (92%)</td>
<td>0.436</td>
</tr>
<tr>
<td>Yes</td>
<td>10 (10%)</td>
<td>6 (6%)</td>
<td>16 (8%)</td>
<td></td>
</tr>
<tr>
<td>Academic performance§</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Below average</td>
<td>45 (45%)</td>
<td>10 (10%)</td>
<td>55 (27%)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>26 (25%)</td>
<td>50 (49%)</td>
<td>76 (37%)</td>
<td></td>
</tr>
<tr>
<td>Above average</td>
<td>31 (31%)</td>
<td>42 (41%)</td>
<td>73 (36%)</td>
<td></td>
</tr>
<tr>
<td>Hard working</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Below average</td>
<td>61 (61%)</td>
<td>28 (28%)</td>
<td>89 (43%)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>18 (18%)</td>
<td>43 (42%)</td>
<td>61 (30%)</td>
<td></td>
</tr>
<tr>
<td>Above average</td>
<td>23 (23%)</td>
<td>31 (30%)</td>
<td>54 (27%)</td>
<td></td>
</tr>
<tr>
<td>Learning</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Below average</td>
<td>69 (67%)</td>
<td>50 (49%)</td>
<td>119 (58%)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>13 (13%)</td>
<td>22 (22%)</td>
<td>35 (17%)</td>
<td></td>
</tr>
<tr>
<td>Above average</td>
<td>20 (20%)</td>
<td>30 (29%)</td>
<td>50 (25%)</td>
<td></td>
</tr>
<tr>
<td>Happiness</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Below average</td>
<td>62 (61%)</td>
<td>18 (18%)</td>
<td>80 (40%)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>40 (39%)</td>
<td>80 (78%)</td>
<td>120 (59%)</td>
<td></td>
</tr>
<tr>
<td>Above average</td>
<td>00</td>
<td>4 (4%)</td>
<td>4 (2%)</td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant p <0.05 (Fisher Exact value)

§Below average (<70%), Average (70% - <85%), above average (>85%)
Table 3 shows the correlation between height and scholastic achievement among all students. There is weak to moderate positive correlation between height and academic performance, hardworking, learning and happiness, which is statistically significant. This means that when the height-for-age is decreased the academic performance, hardworking, learning and happiness are decreased too (direct relationship).

Table 3. Correlation between height and the scholastic achievement among all students (Spearman’s correlation coefficient)

<table>
<thead>
<tr>
<th>Scholastic achievement parameters</th>
<th>Height (cm)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>P-value*</td>
</tr>
<tr>
<td>Private teaching lessons (private tuitions)</td>
<td>-0.113</td>
<td>0.106</td>
</tr>
<tr>
<td>Grade repetition</td>
<td>0.086</td>
<td>0.222</td>
</tr>
<tr>
<td>Academic performance</td>
<td>0.295</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hard work</td>
<td>0.339</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Learning</td>
<td>0.324</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Happiness</td>
<td>0.424</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

*Statistically significant p<0.05

Table 4 shows the frequency of behavioral disorders in stunted and non-stunted students. There is a statistically significant difference (p<0.05) in most behavior disorders between stunted and non-stunted students which means that behavioral disorders occur more frequent among stunted children compared to the non-stunted.

Table 4. Frequency of behavioral disorders in stunted and non-stunted students

<table>
<thead>
<tr>
<th>Behavioural scoring</th>
<th>Stunted N=102</th>
<th>Non-stunted N=102</th>
<th>Total N=204</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Withdrawal scoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Normal(&lt;8)</td>
<td>57 (56%)</td>
<td>83 (81%)</td>
<td>140 (69%)</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Borderline(8-9)</td>
<td>23 (23%)</td>
<td>13 (13%)</td>
<td>36 (18%)</td>
<td></td>
</tr>
<tr>
<td>• Clinical disorder(&gt;9)</td>
<td>22 (22%)</td>
<td>6 (6%)</td>
<td>28 (14%)</td>
<td></td>
</tr>
<tr>
<td>Somatic scoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Normal(&lt;6)</td>
<td>71 (70%)</td>
<td>100 (98%)</td>
<td>171 (84%)</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Borderline(6-7)</td>
<td>22 (22%)</td>
<td>2 (2%)</td>
<td>24 (12%)</td>
<td></td>
</tr>
<tr>
<td>• Clinical disorder(&gt;7)</td>
<td>9 (9%)</td>
<td>00</td>
<td>9 (4%)</td>
<td></td>
</tr>
<tr>
<td>Anxiousness scoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Normal(&lt;12)</td>
<td>73 (72%)</td>
<td>94 (92%)</td>
<td>167 (82%)</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Borderline(12-14)</td>
<td>22 (22%)</td>
<td>8 (8%)</td>
<td>30 (15%)</td>
<td></td>
</tr>
<tr>
<td>• Clinical disorder(&gt;14)</td>
<td>7 (7%)</td>
<td>00</td>
<td>7 (3%)</td>
<td></td>
</tr>
<tr>
<td>Social scoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Normal(&lt;7)</td>
<td>94 (92%)</td>
<td>102 (100%)</td>
<td>196 (96%)</td>
<td>0.007*</td>
</tr>
<tr>
<td>• Borderline(7-8)</td>
<td>8 (8%)</td>
<td>00</td>
<td>8 (4%)</td>
<td></td>
</tr>
<tr>
<td>Thought scoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Normal(&lt;3)</td>
<td>102 (100%)</td>
<td>98 (96%)</td>
<td>200 (98%)</td>
<td>0.121</td>
</tr>
<tr>
<td>• Borderline(3-4)</td>
<td>00</td>
<td>4 (4%)</td>
<td>4 (2%)</td>
<td></td>
</tr>
<tr>
<td>Attention scoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Normal(&lt;9)</td>
<td>32 (31%)</td>
<td>68 (67%)</td>
<td>100 (49%)</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Borderline(9-11)</td>
<td>27 (26%)</td>
<td>24 (24%)</td>
<td>51 (25%)</td>
<td></td>
</tr>
<tr>
<td>• Clinical disorder(&gt;11)</td>
<td>43 (42%)</td>
<td>10 (10%)</td>
<td>53 (26%)</td>
<td></td>
</tr>
</tbody>
</table>
Relation between Stunting and Scholastic Achievement and Behavior in Ismailia City

<table>
<thead>
<tr>
<th>Delinquency scoring</th>
<th>76 (75%)</th>
<th>83 (81%)</th>
<th>159 (78%)</th>
<th>0.013*</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Normal (&lt;6)</td>
<td>18 (18%)</td>
<td>19 (19%)</td>
<td>37 (18%)</td>
<td></td>
</tr>
<tr>
<td>• Border line (6-7)</td>
<td>8 (8%)</td>
<td>00</td>
<td>8 (4)</td>
<td></td>
</tr>
<tr>
<td>• Clinical disorder (&gt;7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aggressiveness scoring</th>
<th>45 (44%)</th>
<th>81 (79%)</th>
<th>126 (62%)</th>
<th>&lt;0.0001*</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Normal (&lt;16)</td>
<td>49 (48%)</td>
<td>21 (21%)</td>
<td>70 (34%)</td>
<td></td>
</tr>
<tr>
<td>• Border line (16-20)</td>
<td>8 (8%)</td>
<td>00</td>
<td>8 (4)</td>
<td></td>
</tr>
<tr>
<td>• Clinical disorder (&gt;20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Statistically significant p < 0.05
* f statistically significant p < 0.05 (Fisher Exact value)

Table 5 shows the mean score calculated for behavioral disorders14 among stunted and non-stunted students. The internalizing disorders, externalizing disorders and other behavioral disorders among stunted students (21.196 ± 4.564, 19.519 ± 5.4130 and 18.088 ± 6.468) are more common compared to non-stunted students (15.735 ± 4.780, 13.78 ± 6.161 and 11.598 ± 4.333) and scores are statistically significant (p<0.05).

Table 5. Behavioral disorders scoring in stunted and non-stunted students

<table>
<thead>
<tr>
<th>Behavior disorders</th>
<th>Stunted Mean ± SD</th>
<th>Non-stunted Mean ± SD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internalizing disorders</td>
<td>21.196 ± 4.564</td>
<td>15.735 ± 4.780</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Withdrawal</td>
<td>6.4 ± 3.25</td>
<td>4.37 ± 2.972</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Somatic complaints</td>
<td>5.26 ± 1.768</td>
<td>3.64 ± 1.447</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Anxiousness</td>
<td>9.53 ± 2.724</td>
<td>7.73 ± 2.347</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Externalizing disorders</td>
<td>19.519 ± 5.4130</td>
<td>13.78 ± 6.161</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Delinquency</td>
<td>4.21 ± 2.24</td>
<td>3.62 ± 1.503</td>
<td>0.029*</td>
</tr>
<tr>
<td>• Aggressiveness</td>
<td>15.31 ± 4.093</td>
<td>10.16 ± 5.632</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Other</td>
<td>18.088 ± 6.468</td>
<td>11.598 ± 4.333</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Social problems</td>
<td>5.08 ± 1.191</td>
<td>3.65 ± 1.059</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Thought problems</td>
<td>0.85 ± 0.825</td>
<td>0.92 ± 0.78</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>• Attention problems</td>
<td>12.16 ± 5.958</td>
<td>7.03 ± 3.87</td>
<td>0.542</td>
</tr>
</tbody>
</table>

*Statistically significant p<0.05 (Mann-Whitney)

Table 6 shows the correlation between height and behavior disorders. There is a weak to moderate negative correlation between height and most of behavioral disorders such as withdrawal, somatic complaints, anxiousness, social problems, attention problems and aggressiveness, which is statistically significant. This means that when the height-for-age is decreased the behavioral disorders are more frequently occurring (indirect relationship).
Table 6. Correlation between height and behavior disorders (Spearman correlation coefficient)

<table>
<thead>
<tr>
<th>Behavior disorders</th>
<th>Height (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>-0.312</td>
</tr>
<tr>
<td>Somatic complaints</td>
<td>-0.388</td>
</tr>
<tr>
<td>Anxiousness</td>
<td>-0.218</td>
</tr>
<tr>
<td>Social problems</td>
<td>-0.472</td>
</tr>
<tr>
<td>Thought problems</td>
<td>0.089</td>
</tr>
<tr>
<td>Attention problems</td>
<td>-0.412</td>
</tr>
<tr>
<td>Delinquency</td>
<td>-0.121</td>
</tr>
<tr>
<td>Aggressiveness</td>
<td>-0.352</td>
</tr>
</tbody>
</table>

*Statistically significant p<0.05

Discussion

The present study shows that maternal education is low in children who are stunted, which is consistent with the finding of a study examining the association between biodevelopmental, socioeconomic determinants and the malnutrition problem in Egypt using data from the demographic and health survey (DHS). It shows that education level of mothers are associated with higher height-for-age and suggests an educated mother will assume responsibility for taking her sick child to a health center.

In addition, our findings regarding maternal education confer with a study from Uganda with the findings from a systematic review that used summary statistics from 2004 to 2014 in which 25 studies established that more years a mother spends in education is linked to protective factors against stunting. In India, Borooah conducted a study to analyze the determinants of the risks of severe stunting in rural children between the ages of 0-12 years. The study found that children whose mothers were illiterate were more likely to be stunted than children whose mothers were literate. This suggests that an educated mother might take advantage of advice and information relating to child care.

The relation between stunting and maternal education might be explained in that educated women are more likely to utilize local health care services (pre- and postnatal care, under-5 clinic visits). They also are more likely to implement sanitary nutrition or health practices (nutrient intake, the length of breastfeeding or age at which supplementary foods were introduced, the level of sanitation in the home, good balanced diet for the school age) which are beneficial to child growth and development.

Regarding birth order, the present study found that higher ranking child order is greater among stunted than non-stunted. That is similar to the finding of a study by Howell and another study conducted by Borooah, using unit-record data on over 50,000 rural children from the sixteen major states of India. The study revealed that the higher the birth order of a child, the greater the likelihood of being stunted.

On the other hand, a cross sectional study in the Al-Marg region, an eastern district of Cairo, detected the impact of low growth on school children aged between 11 and 14 years while El-Moselhy reported that being a first born child was a significant risk factor for low growth. From this finding, it can be suggested that the youngest children might have poor care and less attention from their parents and the first child might have a less experienced mother.

Results suggest a correlation between larger families and stunted growth in children. El-Moselhy highlighted similar findings in a study conducted in Cairo. In addition, Marston and Cleland conducted a study to examine the health related effects of pregnancy on child growth (stunting) using data from five demographic and health survey enquiries in Bolivia, Egypt, Kenya, Peru, and the Philippines, which found that stunting was associated with large family size rather than birth order.

Esfarjani et al. reported that children living in households with four or more children were more likely to be stunted than children living in less crowded families. Large families may affect stunting through exposure to multiple risks such as poverty (poor maternal nutrition and poor feeding practices), malnutrition (poor food quality as diet lacks protein and other micronutrients), poor health
Relation between Stunting and Scholastic Achievement and Behavior in Ismailia City

We found that children with lower height-for-age were far behind their peers in scholastic achievement. This is in accordance with a cross-sectional, community-based study in the Al Basra rural area of Egypt, which assessed the nutritional status of children aged between six months and 15 years. Further, Brito and Onis conducted a study in the metropolitan area of Rio de Janeiro on children with a mean age of 13.5 years from a large public school to assess the effect of child growth status (height-for-age) on academic achievement. The study found that children in the group with higher height-for-age performed better only in one subject than children in the group with lower height-for-age. This is supported in other studies in Pakistan and in Philippines. A cross-sectional study in Goba, South East Ethiopia, among primary schools children by Haile et al. found that good height for age was associated with higher mathematics scores. A study in East Uganda found that height for age had positive association with learning achievement in English and mathematics. In Malaysia, Shariff et al. reported that height-for-age was linked to educational achievement. A study in Sri Lanka showed that height-for-age had an impact on examination scores, while another from Uganda examined the effect of stunted growth on the function of cognitive processes using neuropsychological assessments. The study found that stunted children had impaired function of the working memory and executive function.

Another cross-sectional study from Sri Lanka reported that stunting had led to a low level of educational performance of the primary school children, which impacted children’s quality of life in the long-term. In line with the findings of the present study, a study from South West Nigeria summarized that prospective cohort studies show that stunted children have poorer cognitive outcomes and some report social-emotional problems. In addition, Stabler et al. established that shorter children had high rates of scholastic performance problems and poor behavior adjustment. It is understood that stunting is associated with structural and functional impairments to the brain, therefore, a child’s ability to learn and succeed in school is impaired. The pre-frontal region of the brain is responsible for the executive functions and the working memory, which are vital to concentration and higher order processing of information.

Stunted children in the present study have more behavioral disorders and lower scholastic achievement than did children in the control group. Stunted children in the present study displayed more behavioral disorders and lower scholastic achievement than normal children. Stunting is associated with impaired cognitive function and behavioral disorders. This is in supported in many studies, such as that of Jamil and Khalid who concluded that social withdrawal problems and low intelligence quotient (IQ) scores predict low academic achievement in primary school students. In addition, Nelson et al. found that externalizing behavioral disorders such as somatic complaints and delinquency are associated with academic achievement.

The present study revealed that there is a direct relation between height and academic performance and an indirect relation between height and most behavioral problems, such as withdrawal, somatic complaints, anxiousness, social problems, attention problems and aggressiveness. This supports the findings of a study conducted by Brito and Onis, in Rio de Janeiro on children drawn from a large public school with a mean age of 9.4 years to assess the association between child growth (height-for-age) and teacher-reported behavior and academic standing, which found that the lower the height the worse the academic performance. Moreover, height-for-age is negatively correlated with factors related to hyperactivity, conduct problem, impulsivity and inattention of the behavioral rating scales.

The present study found that there is a statistically significant difference in academic performance and behavior disorders between stunted and non-stunted children. This is in consistent with a study conducted by Chang et al. on children who were stunted at age nine to 24 months identified from a house-to-house survey in the poorer neighborhoods of Kingston, Jamaica. In the study, the children engaged in a two year intervention program involving psychosocial stimulation with or without nutritional supplementation and were reassessed at age of 11-12 years and compared with the non-stunted children from the similar neighborhoods. Their school and home behaviors were evaluated using the Rutter Teacher, Parent Scales, the Wide Range Achievement Test (WRAT), and the Suffolk Reading Scales to assess school achievement. The study found that stunted children had significantly lower scores in educational attainment (arithmetic, spelling, word reading and reading comprehension) than the non-stunted children. In addition, it found that children with behavior disorders performed less well at school. Therefore, it is probable that behavioral changes
Contribute to reduced educational performance in stunted children.

Gordon et al.\(^{40}\) conducted a study at the pediatric endocrinology center at the State University of New York (SUNY) to determine the psychosocial effects of short stunted children (ages 6 to 12 years). The study found that shorter children had significantly higher scores of behavioral problems, especially somatic complaints, social withdrawal and schizoid tendencies and there were signs of impaired self-conception expressed by feelings of unpopularity. In addition, Quitmann et al.\(^{41}\) revealed that psychological problems were negatively associated with height as a risk for internalizing problems and impaired quality of life in European children with short stature.

Jafari-adli et al.\(^{42}\) conducted a study to investigate the association of short stature with life satisfaction (LS) and self-rated health (SRH) in children and adolescents from rural and urban areas of 30 provinces in Iran. The study revealed that participants with short stature were at the greater risk of poor SRH and decreased LS compared with children of normal height. The intensity of self-perception and the social integration is dependent on the degree of short stature and the personal capacity to deal with short stature.\(^{43}\)

**Conclusion**

From the present study, it can be suggested children who experience stunted growth are more likely to have mothers with low levels of education, larger families and lastly ranked child order when compared to non-stunted children. In addition, stunting is related to poor scholastic achievement and behavioral disorders.

**Limitation of the present study**

The Child Behavior Checklist (CBCL) for teachers has not been standardized for reliability and validity in Egypt. The academic scholastic achievement is not best measured by CBCL.

**Recommendations**

In light of the present findings, the following is recommended:

1. Health policy planners must direct their efforts to implement new program and policies that aid in the early detection and accurate diagnosis of stunting and behavior disorders; they should note that nutritional and mental health screening programs can be effectively implemented using the existing manpower resources and facilities in schools with the support of health professionals.
2. There should be educational programs for parents to overcome the problems that stunted children face in their day-to-day life and some special education services within the schools to help stunted children with behavior disorders and poor scholastic achievement.

**References**


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تعتبر هذه الدراسة دراسة مقارنة لمعرفة العلاقة بين التقدم والتحصيل الدراسي والسلوك في الأطفال بالصف الخامس والسادس الابتدائي. تمت الدراسة في مدينة الإسماعيلية، بالتعاون مع مدارس الإلهام الخاصة والحكومية، وتم اختيار مجموعتين للدراسة:

المجموعة 1 (مجموعة الدراسة): الأطفال المتقدمين بالصف الخامس والسادس الابتدائي، وليس لهم تاريخ مرضي بمرض السكر أو الصرع أو إصابات بالرأس أو جراحة بالمخ.

المجموعة 2 (مجموعة التحكم): الأطفال الغير متقدمين بالصف الخامس والسادس الابتدائي. تم حساب عينة البحث باستخدام معايير إحصائية وكانت 102 من الطلاب في كل مجموعة ليكون العدد النهائي للعينة هو 204 طالب. أخذت عينة الدراسة بطريقة طبقية من الطلاب بالصف الخامس والسادس الابتدائي (مدارس حكومية، مدارس خاصة) وتمت أخذ عينة متناصرة من كل فئة.

أجريت الدراسة على الأطفال بواسطة قياس الطول نسبته إلى العمر الزمني واستمارة استبيان عن سلوك الطفل والتحصيل الدراسي والمتغيرات الدموغرافية لكل طالب.

النتائج: أوضحت النتائج أن هناك علاقة بين التقدم والتحصيل الدراسي واضطرابات السلوك بين طالب الصف الخامس والسادس الابتدائي بمدينة الإسماعيلية.

وبعد مقارنة النتائج مع النتائج الخاصة بالعديد من الدراسات الأخرى التي تم تطبيقها في مجتمعات مختلفة وعلى فئات مختلفة من حيث السكان والتوفر في الخدمات الصحية والتعليم، فقد نجدها أن نتائج دراستنا تتفق مع العديد من نتائج هذه الدراسات.

الخلاص: ومن خلال هذه الدراسة نستطيع أن هناك علاقة بين التقدم وسوء التحصيل الدراسي واضطرابات السلوك، ومن هذا المنطلق نوصي أن يتم عمل دراصل مستقلة على المستوى المحلي والمستوى الوطني لدراسة التقدم ومضاعفات السلوكي على الطفولة والمجتمع. وكذلك نوصي بإنشاء وحدات متخصصة في المدارس تحت إشراف متخصصين لمساعدة الأطفال المتقدمين للتأقلم مع زملائهم وتدريبهم على التعامل السلمي في المواقف الحياتية المختلفة.

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Prevalence of Female Sexual Dysfunction (FSD) in Women Attending a Hospital-Based Infertility Clinic: A Cross-Sectional Observational Study from Egypt

Nevin F.W. Zaki, Mahmoud Elnagar, David Warren Spence, Seithikurippu R. Pandi-Perumal, Maher Shams

Abstract

Introduction: Female sexual dysfunction (FSD) is a socio-medical problem. The prevalence of FSD varies widely across cultures and is associated with different demographic characteristics. Additionally, infertility clearly influences the sexual functioning and sexual health of women in numerous ways. Aim: The current study assessed the prevalence of female sexual function among women attending the infertility clinic for consultation and treatment. Methods: The study sample included 305 married women who attended the infertility clinic at the Mansoura University Hospitals in Mansoura, Egypt. Psychiatrists interviewed all participants. Those with history of mental or psychiatric disorder were excluded. Participants completed the Arabic version of the Female Sexual Function Index (ArFSFI) and Fertility Quality of Life questionnaire (FertiQoL). Statistical analysis was conducted using SPSS software version 20. Main Outcome Measures: The main problems of female sexual dysfunction were assessed using FSFI. Results: The mean age of the selected sample was 29.2 ± 6 Years. The mean BMI was 31.6±5.9. There were 36 (11.8%) circumcised subjects and 269 (87.7%) uncircumcised. The mean FSFI score of 28.62 was adopted as the cutoff for diagnosis of FSD. FSFI revealed 268 (88%) women had sexual dysfunction and 37 (12%) had no sexual problems. Most of the FSFI sub scores were lowered. Statistically significant differences existed between the participants with sexual dysfunction complaints and those with no sexual dysfunction especially on the FertiQoL indicating that FSD affects infertility in a negative way. Conclusions: FSD is highly prevalent among participants of the current study. Moreover, quality of life is also affected among the study group with sexual dysfunction.

Conflict of interest: None

Key Words: Female sexual dysfunction, infertility, genital mutilation, orgasm.

Introduction

Research on female sexual dysfunction (FSD) in the Arab and Islamic world is scant since the topic of sexuality is considered to be a cultural taboo. Sexual dysfunction occurs in both women and men, but much less research has been conducted on female sexual dysfunctions. Dysfunctionalities in female sexual experience fall into several categories: these include desire disorders, arousal disorders, orgasmic disorders, and sex pain disorders. These sexual problems are highly prevalent in women in many countries. In the United States, approximately 40% of women have sexual concerns and 12% report distressing sexual problems. According to the Diagnostic and Statistical Manual of Mental Diseases – Fifth Edition (DSM 5), sexual dysfunction is characterized by a disturbance in the
Prevalence of female sexual dysfunction (FSD) in women attending a hospital-based infertility clinic

processes that characterize the sexual response cycle or by pain associated with sexual intercourse. Due to the limited number of community studies, prevalence rates in the domains of FSD varied considerably (female arousal disorder 11%–48%). In Iran, it was reported to be 75.9% of the study population exhibited sexual dysfunction. In a recent Egyptian report, it was found that Desire and Orgasm domains were the most affected with 52.8% of participants having sexual dysfunction. No data was available on the pain disorder vaginismus. Infertility is defined as the inability to achieve and maintain a sustainable pregnancy after one year of regular unprotected intercourse for women under 35 years of age and six months for older women. The linkage between infertility and sexuality is complex, and infertility clearly influences the sexual functioning and sexual health of women in numerous ways. Sexual dysfunction may have an etiological role in infertility, or it may be a consequence of the disorder secondary to psychological stress in either or both partners. A majority of studies show that women with infertility have more sexual dysfunctions than the general population. Female sexual dysfunction (FSD) can be diagnosed in various ways in clinical and research settings. Self-report questionnaires, structured interviews, and detailed case histories can aid in confirming the diagnosis. There are few reports on the quality of life and FSD among infertile women in Arab countries. Therefore, the aim of the current study was to evaluate FSD in a sample of women attending the outpatient infertility clinic.

Subjects and methods

Sample size calculation:
The sample size was calculated based on the most important variable in the present study which is infertility. By using this variable from a wide scale epidemiological study that found infertility to be around 2% in Egypt and by using the website http://www.raosoft.com/samplesize.html and with a 90% confidence level, the required sample was estimated to be around 267 participants. We were able to recruit 305.

Patients
The cross-sectional study was carried out between December 2016 and March 2017 on a sample of women (N=305) who attended the infertility clinic at Mansoura University Hospitals. Mansoura Faculty of Medicine Institutional Review Board and Ethical Committee (approval number R/16.11.23) approved the study. Initially, a psychiatrist (the principal investigator) conducted a clinical interview and mental state examination to exclude subjects who were suffering from current primary psychiatric illness or those with past history of a psychiatric disorder (n=35). Data for the study were collected by separate interview, which was performed by the psychiatrist and a team of trained psychiatric nurses. The nurses were there to brief the participants about the importance of the study. A motivational interview was conducted to encourage participants to talk freely about their sexuality without feeling ashamed or hesitant. The interviewing research team comprised women only, which helped to increase the patients’ confidence when answering the questionnaires. Those who declined to engage, even after motivational interviews, were excluded (n=18). Informed consent was obtained from each woman before being enrolled in the study. The study protocol was explained to the participants and the psychiatric team was available if additional information about the questions on the survey were requested. Inclusion criteria were: the ability to read and write, infertility for more than a year, having regular sexual activity lasting at least four weeks prior to involvement in the study, not having been remarried, no history of sterility, and lack of severe domestic conflicts. The exclusion criteria were if any of the infertile women suffered from a chronic medical condition (e.g. diabetes mellitus, cardiovascular diseases, hypertension, hypothyroidism, renal and neurological diseases), physical problems (spinal cord injury, amputation, and
limb deformities), psychiatric problems, experiencing a stressful event in the past three months (death or serious illness in the family, a major change in living conditions).

**Data and questionnaires**

Demographic and personal characteristics included age, educational level, total body mass index (BMI) and circumcision status (now called female genital mutilation, according to the World Health Organization). Around 15 women who were invited to participate in the study declined to complete the questionnaires and consequently were excluded from further analyses.

**Arabic version of female sexual function index**

The validated Arabic version of the FSFI (ArFSFI) was used to assess sexual dysfunction among infertile women. The FSFI is a validated 19-item, self-administered, screening questionnaire that measures aspects of sexual function in women. These were ‘desire’ (two items), ‘arousal’ (four items), ‘lubrication’ (four items), ‘orgasm’ (three items), ‘satisfaction’ (three items), and ‘pain’ (three items). The response grid consisted of a 5-point Likert type scale ranging from 1 to 5 for items 1 and 2 (‘desire’) and from 0 to 5 with the additional option ‘no sexual activity’ for all other questions (3–19). The validated Arabic version was translated. An overall FSFI score of ≤ 26.55 indicated that the respondent’s sexual experience was at risk of being classified as dysfunctional. Study participants were divided into two groups based upon their overall FSFI score: (1) a sexual dysfunction group or (2) a non-sexual dysfunction group. Those who scored higher (with a score of greater than 26.55) were considered closer to normality.

Fertility Quality of Life (FertiQoL) was used to assess the impact of fertility problems on various areas of the respondents’ ‘quality of life’, e.g., on general health, self-perceptions, emotions, marriage, family and social relationships, work life and future life plans. The FertiQoL consists of 36 items that yield six subscales and three total scores. The Core FertiQoL deals with the respondents’ self-evaluated ‘fertility quality of life’, with subscales relating to ‘Emotional’, ‘Mind-Body’, ‘Relational and Social’ issues. The ‘Emotional’ subscale score measures the impact of negative emotions (e.g. jealousy & resentment, sadness, depression) on quality of life. The ‘Mind-Body’ subscale score indicates the impact of fertility problems on physical health (e.g., fatigue, pain); cognitions (e.g. concentration) and behavior (e.g. disrupted daily activities, delayed life plans). The ‘Relational’ subscale deals with the impact of fertility problems in the marriage or partnership (e.g. sexuality, communication, commitment). The Social subscale measures the extent to which social interactions have been affected by fertility problems (e.g. social inclusion, expectations, stigma, and support).

The Treatment FertiQoL is another major subscale focusing on the medical treatment environment, and more particularly on its accessibility and quality, areas identified as the ‘Treatment Environment’ and ‘Treatment Tolerability’. The ‘Treatment Environment’ score provides a measure of the impact of the medical environment (location and proximity of clinics, ease of accessibility) on the subject’s quality of life while the ‘Treatment Tolerability’ subscale score assesses the impact of the perceived quality of the available fertility medical services Appendix 1. The Total FertiQoL score is the quality of life for the Core and Treatment FertiQoL combined. Scores on the response scales are reversed, summed and scaled to range from 0 to 100. Higher scores on the subscales and total scores indicate that the subject is experiencing a better perceived quality of life. The validated Arabic version of the FertiQoL was downloaded from the questionnaire’s official website into an Excel scoring sheet in preparation for final data analysis (http://sites.cardiff.ac.uk/FertiQoL/).
Prevalence of female sexual dysfunction (FSD) in women attending a hospital-based infertility clinic

Statistical Analysis
All statistical analyses were performed using SPSS software (Version 20(18)). All reported P-values were two-sided, with a P<.05 being considered statistically significant. Statistical analyses were performed using independent sample t test or χ2 test. Correlations were applied to detect the association of FSFI scores with demographic and personal characteristics in infertile women.

Results
Studies investigating the prevalence of female sexual disorders in Egypt and the Arab world have revealed discrepancy of results due to different methodological procedures and variance in inclusion criteria of the recruited participants. In the present study, a total N=306 women aged 18 to 47 years who were visiting the infertility clinic at the Mansoura University Hospitals were surveyed, providing the data for statistical analysis. Described in Table 1 and Table 2 are the socio-demographic characteristics of the surveyed women. Of the women surveyed, 10.2% (n=31) were of normal weight while 31.8% (n=97), 30.8 (n=94), 22.3 (n=68), 4.9% (n=15) were classified as overweight, obesity class I, II, III respectively. The mean age was 29.2 ± 6 Years. Around 42% of the sample (n=129) were between 15-29 years of age. Their mean weight was 67.9 kg, while their mean height was 141.9cm. The majority of the sample (53.11%) were educated to the secondary level (n=162) while those who had obtained a university degree made up the smallest proportion of the sample (2.6%, n=8). It was found that the largest proportion of the sample, 87.7% (n=269), were uncircumcised. Concerning the effects of education, chi-square testing revealed a significant (p=0.000) relationship between the subject’s level of literacy/years in school and the presence of sexual dysfunctionality. Despite the extremely large occurrence of sexual difficulties in all subgroups, the findings suggested a positive relationship existed between the level of educational attainment and presence of sexual dysfunctionality. It was noted for instance that women with low educational/literacy levels level were slightly more likely to have higher FSFI scores, i.e. of having comparatively less sexual dysfunctionality, than women who had a university education. These findings would need to be confirmed in a larger sample.

The present study found that sexual dysfunction was widespread in the selected study sample. The FSFI test revealed n=268 (88%) of the women studied had sexual dysfunction difficulties, while a much smaller proportion of 37 subjects (12%) had no sexual problems in relation to the cut-off score 26.55 for the FSFI. These findings are shown in Table 3, which also compares the socio-demographic characteristics of the two groups. It was noted that obesity or BMI classification did not have a significant relationship (p=0.18) with sexual dysfunction. Whether or not the patient had been circumcised, however, was a strong predictor, tending toward statistical significance (p=0.055), of having a sexual dysfunction. There was an evident statistical difference in the level of education and age between the two groups (p=0.000) in both cases. A mean FSFI score of 28.62 was found in the group with FSD. Study findings indicated that the FSDI subscales of arousal, lubrication, orgasm, and satisfaction were the most affected domains (score 2.96) in the FSD group compared to the non-sexual dysfunction group (p< 0.0001) (Table 4). The cutoff score of 26.5 was used to differentiate between groups similar to other studies using the translated Arabic version of the questionnaire.

The recruited subjects who completed the FertiQoL had a mean Core FertiQoL score of (50.94 ±8.8) with a minimum of 31 and a maximum of 79. The mean treatment FertiQoL score was (61.3±19.65) with a minimum of 30 and a maximum of 32.5. The mean subscales of Core FertiQoL i.e. Emotional, Mind/ Body, Relational and Social was (11.74±3.07, 11.48±3.59, 12.95±1.96, 12.42±2.86), respectively. It was noted that
the mean response score for environment subscale (69.83±21.43) was greater than that of the tolerability subscale (47.34±16.65). In general, scores approaching 100 are considered to represent a good quality of life while lower scores indicate a lower quality of life. A summary of the FertiQoL score is presented in Table 4. On comparing the mean FertiQoL scores between the sexual dysfunction group and the non-sexual dysfunction group it was noted that the sexual dysfunction group had lower scores in all of the subscales. Statistically significant differences were found on all of the FertiQoL subscales, except for the environment subscale (p=0.14). These findings supported the conclusion that the fertility quality of life questionnaire indicating that sexual dysfunction affects negatively quality of life in women with infertility.

### Table 1. Demographic characteristics of the recruited sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI Classification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal weight</td>
<td>31</td>
<td>10.2</td>
</tr>
<tr>
<td>Overweight</td>
<td>97</td>
<td>31.8</td>
</tr>
<tr>
<td>Obesity class I</td>
<td>94</td>
<td>30.8</td>
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<tr>
<td>Obesity class II</td>
<td>68</td>
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<td>Obesity class III</td>
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<td>4.9</td>
</tr>
<tr>
<td>Education level</td>
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<tr>
<td>Low educational</td>
<td>135</td>
<td>19.6</td>
</tr>
<tr>
<td>Higher educational</td>
<td>170</td>
<td>53.11</td>
</tr>
<tr>
<td>Circumcision</td>
<td></td>
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</tr>
<tr>
<td>Circumcised</td>
<td>36</td>
<td>11.8</td>
</tr>
<tr>
<td>Uncircumcised</td>
<td>269</td>
<td>87.7</td>
</tr>
<tr>
<td>Age group in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20-24</td>
<td>77</td>
<td>25</td>
</tr>
<tr>
<td>25-29</td>
<td>129</td>
<td>42</td>
</tr>
<tr>
<td>30-34</td>
<td>58</td>
<td>19</td>
</tr>
<tr>
<td>35-40</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>&gt;40</td>
<td>9</td>
<td>3</td>
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Table 3. Difference in socio-demographic characteristics between sexual dysfunction group and non-sexual dysfunction group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sexual dysfunction group</th>
<th>Non-Sexual dysfunction group</th>
<th>$X^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>according to FSDI total score</td>
<td>according to FSDI total score</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N(%)within sexual dysfunction</td>
<td>N(%)within sexual dysfunction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI Classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal weight</td>
<td>28(10.4)</td>
<td>3(8.1)</td>
<td>6</td>
<td>0.18</td>
</tr>
<tr>
<td>Overweight</td>
<td>81(30.2)</td>
<td>16(43.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesity class I</td>
<td>88(32.8)</td>
<td>6(16.2)</td>
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<td></td>
</tr>
<tr>
<td>Obesity class II</td>
<td>57(21.2)</td>
<td>11(29.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesity class III</td>
<td>14(5.2)</td>
<td>1(2.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td>103</td>
<td>0.00</td>
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<tr>
<td>Low educational</td>
<td>115(44.9)</td>
<td>20(54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher educational</td>
<td>153(57.1)</td>
<td>17(45.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circumcision</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>circumcised</td>
<td>32(11.9)</td>
<td>4(10.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>uncircumcised</td>
<td>236(88.1)</td>
<td>33(89.2)</td>
<td>1</td>
<td>0.055</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20-24</td>
<td>63(23.5)</td>
<td>14(37.8)</td>
<td>10</td>
<td>0.00</td>
</tr>
<tr>
<td>25-29</td>
<td>114(42.5)</td>
<td>15(40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>53(19.8)</td>
<td>5(13.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-40</td>
<td>31(11.6)</td>
<td>1(2.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;40</td>
<td>7(2.6)</td>
<td>2(5.4)</td>
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</table>
**Table 4.** Differences in FSDI subscales between sexual dysfunction group and non-sexual dysfunction group

<table>
<thead>
<tr>
<th>FSDI subscales</th>
<th>Sexual dysfunction group according to FSDI total score</th>
<th>Non -Sexual dysfunction group according to FSDI total score</th>
<th>T-value</th>
<th>p-value</th>
<th>CI (lower bound)</th>
<th>CI (upper bound)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ±SD</td>
<td>Mean ±SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire</td>
<td>3.74 ±0.61</td>
<td>5.12 ±0.61</td>
<td>2.14</td>
<td>0.0001</td>
<td>0.11</td>
<td>2.64</td>
</tr>
<tr>
<td>Arousal</td>
<td>2.96 ±0.29</td>
<td>3.80 ±0.29</td>
<td>9.18</td>
<td>0.0001</td>
<td>0.66</td>
<td>1.02</td>
</tr>
<tr>
<td>Lubrication</td>
<td>3.96 ±0.65</td>
<td>5.18 ±0.65</td>
<td>13.6</td>
<td>0.0001</td>
<td>1</td>
<td>1.44</td>
</tr>
<tr>
<td>Orgasm</td>
<td>3.9 ±0.54</td>
<td>5.16 ±0.23</td>
<td>12.2</td>
<td>0.0001</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4 ±0.85</td>
<td>5.20 ±0.55</td>
<td>8</td>
<td>0.0001</td>
<td>0.9</td>
<td>1.49</td>
</tr>
<tr>
<td>Pain</td>
<td>3.68 ±0.22</td>
<td>4.15 ±0.22</td>
<td>6.2</td>
<td>0.0001</td>
<td>0.32</td>
<td>0.61</td>
</tr>
<tr>
<td>Total</td>
<td>22.4 ±2.27</td>
<td>28.62 ±1.77</td>
<td>15.8</td>
<td>0.0001</td>
<td>5.58</td>
<td>7.17</td>
</tr>
</tbody>
</table>

**Table 5.** Means and standard deviations of FertiQoL subscales among the infertile women

<table>
<thead>
<tr>
<th>(FertiQol subscales)</th>
<th>min</th>
<th>max</th>
<th>mean ±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw emotional</td>
<td>4</td>
<td>20</td>
<td>11.74 ±3.07</td>
</tr>
<tr>
<td>Raw mind/body</td>
<td>3</td>
<td>18</td>
<td>11.48 ±3.59</td>
</tr>
<tr>
<td>Raw relational</td>
<td>6</td>
<td>20</td>
<td>12.95 ±1.96</td>
</tr>
<tr>
<td>Raw social</td>
<td>5</td>
<td>21</td>
<td>12.42 ±2.86</td>
</tr>
<tr>
<td>Raw environment</td>
<td>5</td>
<td>24</td>
<td>16.52 ±4.41</td>
</tr>
<tr>
<td>Raw tolerability</td>
<td>2</td>
<td>15</td>
<td>7.58 ±2.66</td>
</tr>
<tr>
<td>Total raw core score</td>
<td>30</td>
<td>72</td>
<td>48.60 ±8.22</td>
</tr>
<tr>
<td>Total raw treatment</td>
<td>12</td>
<td>33</td>
<td>24.09 ±5.01</td>
</tr>
<tr>
<td>Raw total FertiQol</td>
<td>50</td>
<td>101</td>
<td>72.70 ±11.46</td>
</tr>
<tr>
<td>Scaled emotional</td>
<td>25</td>
<td>83</td>
<td>49.21 ±12.80</td>
</tr>
<tr>
<td>Scaled mind/body</td>
<td>13</td>
<td>133</td>
<td>48.28 ±15.83</td>
</tr>
<tr>
<td>Scaled relational</td>
<td>21</td>
<td>325</td>
<td>47.26 ±17.43</td>
</tr>
<tr>
<td>Scaled social</td>
<td>21</td>
<td>100</td>
<td>52.15 ±12.27</td>
</tr>
<tr>
<td>Scaled environment</td>
<td>21</td>
<td>263</td>
<td>69.83 ±21.43</td>
</tr>
<tr>
<td>Scaled tolerability</td>
<td>13</td>
<td>94</td>
<td>47.34 ±16.65</td>
</tr>
<tr>
<td>Total scaled score</td>
<td>31</td>
<td>79</td>
<td>50.94 ±8.80</td>
</tr>
<tr>
<td>Total scaled treatment</td>
<td>30</td>
<td>325</td>
<td>61.30 ±19.65</td>
</tr>
<tr>
<td>Total scaled FertiQol</td>
<td>38</td>
<td>83</td>
<td>53.98 ±8.74</td>
</tr>
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</table>
Table 6. Differences of FertiQol subscales between sexual dysfunction group and non-sexual dysfunction group

<table>
<thead>
<tr>
<th>FertiQol subscales</th>
<th>Sexual dysfunction group according to FSDI total score</th>
<th>Non-sexual dysfunction group according to FSDI total score</th>
<th>P</th>
<th>CI (lower bound)</th>
<th>CI (upper bound)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean(±SD)</td>
<td>Mean(±SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaled subscale:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>48.35(11.8)</td>
<td>52.5(12)</td>
<td>0.05</td>
<td>0.08</td>
<td>8.3</td>
</tr>
<tr>
<td>Mind/body</td>
<td>47.37(14.9)</td>
<td>53.5(13)</td>
<td>0.023</td>
<td>0.86</td>
<td>11.3</td>
</tr>
<tr>
<td>Relational</td>
<td>53.61(8.2)</td>
<td>56(7.8)</td>
<td>0.12</td>
<td>0.53</td>
<td>5.3</td>
</tr>
<tr>
<td>Social</td>
<td>51.1(11.6)</td>
<td>60(14.5)</td>
<td>0.0001</td>
<td>4.6</td>
<td>13.1</td>
</tr>
<tr>
<td>Environment</td>
<td>68.2(17.7)</td>
<td>73(21.6)</td>
<td>0.14</td>
<td>1.7</td>
<td>11.3</td>
</tr>
<tr>
<td>Tolerability</td>
<td>46.1(16.7)</td>
<td>55.7(12.5)</td>
<td>0.029</td>
<td>0.9</td>
<td>18.2</td>
</tr>
<tr>
<td>Total scaled core score</td>
<td>50.1(8.7)</td>
<td>55.4(9.5)</td>
<td>0.001</td>
<td>2.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Total scaled treatment score</td>
<td>59.4(12.2)</td>
<td>66(13.2)</td>
<td>0.003</td>
<td>2.2</td>
<td>11</td>
</tr>
<tr>
<td>Total scaled FertiQoL score</td>
<td>52.8(8.4)</td>
<td>58.5(9.8)</td>
<td>0.0003</td>
<td>2.6</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Discussion
Female sexual dysfunction is a common problem in developed countries and in those of the developing world. The extent of this phenomenon is often underestimated, however, due to cultural taboos against the open discussion of sexuality. Although there is widespread interest in research on male erectile dysfunction, only recently has a similar level of attention been paid toward female sexual dysfunction. Recent surveys have confirmed further that patterns of sexual dysfunction differ among different racial and ethnic groups. Female circumcision is a traditional practice in Egypt, but its impact on sexual functioning is largely unrecognized. In a recent study, 69.9% of women were found to be suffering from one or more sexual problems; the sample had a 90% rate of circumcised women and girls indicating the effect of circumcision on development of FSD. Although assessment of circumcision status was not an objective in the present study, it was found that over 80% of those recruited were
uncircumcised. This might be due to the young age of the participants who were born after legalization of the law considering circumcision as a crime. Most of the uncircumcised participants noted that their parents had the intention of carrying out the procedure, but they were hindered by worrying about the risk of death for their daughters since most of the doctors refused to do it. Elnashar in 2007 noted that loss of desire was reported by 49.6% of patients followed by the occurrence of orgasmic problems in 43%. It was observed that the most affected domain was desire followed by arousal, lubrication, and orgasm. The incidence of female sexual dysfunction worldwide is 38% to 63%. In the present study, we found that 88% of infertile women had sexual dysfunction, which is higher than similar reports from different regions in Egypt. Ahmad et al. found the prevalence of FSD during pregnancy to be 68.8% and the FSFI scores of all domains and total score were significantly reduced. On the other hand, it is close to a similar study in Bangladesh reporting sexual dysfunction among infertile women to be 65%. Interestingly, we found that the pain score was lower in the sexual dysfunction group compared to patients without sexual dysfunctions and considered against a recent study that reported 42 (28%) of women had FSD. Pain, lubrication and arousal were the most commonly reported problems for 69.3%, 53.3% and 52%, respectively. Obese women were more likely to experience desire, arousal and lubrication problems. There are many factors that affect female sexual dysfunction, but among these circumcision is one of the most important and, indeed, this was confirmed in the present study by the strong trend of statistical significance between circumcised and non-circumcised women on the total score of FSDI (p=0.055). Accumulating evidence now supports the conclusion that a reciprocal feedback relationship exists between infertility and sexual dysfunctionality. Infertility alters a woman’s sexual experience by causing or intensifying sexual problems because of the diagnosis, investigation, and treatment of infertility. Conversely, sexual problems may contribute to infertility. In women, sexual stimuli alone do not essentially lead to sexual arousal because psychological stress may prevent their occurrence. Studies have shown that infertility has a greater negative impact on women’s sense of sexual identity than does any other type of stress. Women may also experience marital discord following a diagnosis of infertility, particularly when treatment is attempted on multiple occasions. One consequence of these experiences is a shift in perceptions about how intercourse, which affected women, may start to be viewed as being exclusively for the purpose of conception rather than for pleasure. These conditions may additionally contribute to FSD. In the current study, the percentage of infertile women complaining of FSD symptoms was considerably greater than those who did not report such symptoms (87.8% vs 12.1%), according to the FSFI. These findings are consistent with the other findings, which suggested that sexual problems may indirectly lead to infertility by decreasing the frequency of sexual intercourse; however, it is equally likely that infertility impacts directly on women’s sexual function. However, a similar study revealed that the proportion of women with sexual dysfunction was higher in the infertile versus control group (47% vs 30%, 95% CI for the difference). Total orgasm, satisfaction and pain scores were significantly lower in infertile versus control group. Monga et al. showed that having children is an important feature in the lives of most couples. Several studies have shown that the prevalence of sexual dysfunction is greater in infertile women than in fertile women. Tarlatzis et al. reported that the prevalence of female sexual dysfunction was 50% in infertile women. On the other hand, some studies did not find any differences between infertile women and normal women in the general population in terms of sexual functioning. The results of the present study are consistent with those of Millheiser et al. who found significantly lower scores
of desire and arousal in the infertile group than the fertile group.

In Egypt, there are few reports on FSD among Egyptian women. There are similarly very few reports on this point from Arab world countries. We have found that desire is the most affected domain among the women we interviewed and tested. In the Lower Egypt study, reduced sexual desire was related to several factors, including female circumcision, socio-economic circumstances - such as low income and lack of adequate privacy at home - increased household duties, and husbands’ choice of unsuitable time for sexual intercourse. The prevalence of FSD has been shown to vary among women of different racial groups. The International Society of Sexual Medicine reported the prevalence of female sexual disorders worldwide to be around 40-50% of women irrespective of age. In the present study, we found 88% of the recruited sample to suffer from sexual disorders, which is higher than the worldwide reported percentage probably owing to cultural and religious morals prohibiting complaining about unsatisfactory sex in addition to the role of circumcision and the status of infertility. The Female Sexual Function Index (FSFI) was one of two self-report questionnaires used in our survey. Originally described by Rosen et al., it is currently the most frequently used FSD questionnaire and has now been formally validated in the Arabic language. It is to be hoped that further efforts to explore some of the issues raised in the present study will be undertaken and that the instruments used will facilitate comparisons with other national samples.

**Limitations**
The present study had several limitations. In particular, the number of participants was limited, and an important contributor to FSD, the occurrence of male erectile dysfunction was not investigated because the patients’ male partners were not interviewed. Further, inasmuch as this was a hospital-based study, the sample subjects were women attending an infertility clinic for treatment; whereas a broader community sample would have increased the generalizability of the results. Due to the sensitive nature of the topic dealt with in the questionnaires, and in spite of measures taken to ensure privacy and comfort through utilization of female interviewers, some questions regarding marital life and sexual life may not have elicited accurate responses due to the shyness of the participants.

**Conclusion**
FSD is widely prevalent among women suffering from infertility. From the findings of the present study, as well as those from other studies, it is known that these participants have a lower quality of life because of their sexual dysfunctionality. It is therefore considered advisable for FSD screening to be included as a routine procedure during the interviewing and management of infertile women.

**Acknowledgement**
The authors would like to thank all the study participants for their time and involvement. We would also like to thank the psychiatric nurses for help in interviewing the participants.

**References**


المقدمة:

تعتبر إعسار الجنس لدى الإناث من المشاكل الاجتماعية، ويتسبب اختلاف هذه المشكلة اختلافاً واسعاً عبر الثقافات وترتبط بخصائص مكانية مختلفة.

الهدف من البحث والغرض من هذه الدراسة هو تقييم مدى انتشار اختلال الوظائف الجنسية للإناث بين النساء المتزوجات في جامعة المنصورة (جمهورية مصر العربية) وتم مقابلة كلية إكلينيكية مع جميع المشاركين، وتم استبعاد من نين أن لديهم اضطرابات نفسية مصنفة إكلينيكياً طلب من المشاركين الاجابة على أسئلة النسخة العربية من مؤشر الوظائف الجنسية للإناث واستبيان جودة الحياة لمرضى العقم (فرتيكول). تم إجراء التحليل الإحصائي باستخدام برنامج SPSS الإصدار 20. النتائج الرئيسية: كان متوسط عمر العينة المختارة 29.2±6 سنوات. وكان متوسط مؤشر كلفة الجسم 31.6±5.9. كان هناك 36% (11.8٪) من النساء تم اختيارهن و269(87.7٪) غير مختارة. واعتمدت الدراسة من 28.6٪ كحد أقصى لتشخيص الاضطرابات الجنسية. و栲حت الدراسة عن وجود 268 امرأة (88 في المائة) تختار من قبل وزني جنسي، و37 في المائة (12 في المائة) لم يختار من مشاكل جنسية. الاضطرابات الإحصائية كانت واضحة بين مجموعة المشاركين للنساء الذين تم اختيارهم من الاضطرابات الجنسية وبين النساء الذين تم اختيارهم من أي اضطرابات جنسية على مقياس جودة الحياة لمرضى العقم. كما يوجد أن النساء لديهن رضاضات الجنسية تؤثر بشكل سلبي على أداء الفروق الجنسية. الاستنتاجات: اختلال الوظائف الجنسية متبرز بشكل كبير بين المشاركين في الدراسة الحالية. كما أن جودة الحياة تتأثر أيضاً لدى النساء اللواتي تعاني من العقم. إذاً، من الأفضل كلينيكياً تقييم الاضطرابات الجنسية لدي النساء المتزوجات على عيادات العقم وذلك لإن التعامل مع هذه المشكلة قد يحسن من الوضع الصحي للكثير من النساء.
Original paper

Job Satisfaction and Burnout among Iraqi Physicians: Insight from University Hospital Surveys

Sura Bahjat Mohammed, Batool Ali Hassan, Maha Sulaiman Younis

Abstract

Job satisfaction is extremely varied across different professions and different countries. It has been linked to burnout syndrome in a complex cause-effect relationship. Physicians of different grades are deemed as one of the most vulnerable service providers due to heavy workload and professional challenges. Various personal and environmental factors predispose to or alleviate the morbidity of job dissatisfaction and burnout. These critical psychological phenomena are under researched in Arab countries. Objectives: The present study aims to explore the level of job satisfaction and prevalence of burnout; and, to determine and assess the effect of stress relief factors among a group of Iraqi physicians. Method: N=310 medical residents and specialists in three university hospitals in Baghdad completed the questionnaire formats, including demographic and job characteristics, a job satisfaction survey, the Maslach Burnout Inventory (MBI) and suggested stress-relief factors during 2016. Results: The majority of participants were residents with an equal male to female ratio and mean age of 34.7 years. Low level of burnout affected 91.3% with the highest rate reported in the depersonalization (DP) subscale. There was no significant difference between burnout and the studied stress-relief factor. Conclusion: It is crucial for any health care system to provide a work environment that maintains better levels of job satisfaction and prevents burnout for its working physicians. The present study indicated that physicians working and living in Iraq are overwhelmed by job and environmental stress; their resilience helped to keep a stream of health care services functioning. Larger studies on burnout amongst Iraqi physcians are needed.

Keywords: Job satisfaction, burnout, Iraqi physicians

Declaration of interest: None
physicians in Iraq are a vulnerable group for burnout and poor job satisfaction because they endure heavy workloads due to a labor shortage and loss of security. Therefore, studying the magnitudes of job satisfaction and its relation to burnout may be of some importance in understanding, managing and preventing this phenomenon. A main university general hospital located in the center of Baghdad was chosen for data collection from physicians of all grades regardless of gender. Iraqi nationals were the representative sample for residents and specialists. The present study is unique in assessing the prevalence and the associated factors related to job satisfaction and burnout.

### Method

Three hospitals on the Medical City University Campus were selected for the current study. These were the Baghdad General Hospital, the Surgical Specialties Hospital, and the Children Welfare Hospital. The hospitals comprised a total of 1171 physicians of different age groups and specialties. After explaining the nature of the study, the self-administered MBI and sociodemographic questionnaire forms were distributed to 336 consenting physicians; 310 responded by returning the completed forms, which were submitted for statistical analysis. The forms were in English because, in Iraq, medicine is practiced in English. The sociodemographic and job characteristic form included a separate sheet containing a 5-point Likert scale structured questionnaire designed by the research team and approved by three experts from the Department of Public Health. The questionnaire reflected the subjective satisfaction of the participating physicians. It reflected five specific aspects of medical practice: (1) wages, (2) attitudes towards administration, (3) operating conditions, (4) attitudes towards patients and co-workers, (5) promotion opportunities. The form also included three questions examining protective factors against job dissatisfaction and burnout, e.g. stress relief factors: (1) spouse support, (2) social support from relatives or colleagues, (3) leisure activities/free time. The MBI is a 22-items questionnaire containing three subscales that examine the experience of burnout. The first subscale, emotional exhaustion (EE), is designed to assess emotional and mental resources expressed by reduced energy, loss of enthusiasm, and indifference to work commitment. The second subscale examines depersonalization (DP) by assessing the experience of cynicism, avoiding contact with patients or treating them inanimately, which reflect the negative attitude and distrust in patients. A third subscale, professional accomplishment (PA), is designed to assess the sense of competence and achievement, especially in working and dealing well with people. High mean scores on the EE and DP subscales together with low scores on the PA subscale indicate the presence of burnout syndrome. Data were analyzed using Microsoft Excel 2007 and the Statistical Package for the Social Sciences-PC version 17 (SPSS v 17.0; Cary, NC). Chi-square test, ANOVA, and bivariate analysis linear regression were used. Statistical significance was considered whenever the P value was equal or less than (0.05). The sample size was calculated according to the Steven Thompson Equation. Each participant was assured confidentiality and required to provide his/her written consent. Ethical approval was obtained from the Ethics Committee of the Scientific Research Centre in the Ministry of Health.

### Results

The response rate was 92% with 310 completed forms out of 336. The mean age of participants was 34.75 ± 7.5 years. The demographic and job characteristics of the sample are shown in Table 1 with 49.7% of participants being men and 50.3% being women. The majority (74%), were married with 85.7% having one to three children; 97.4% reported being urban residents and 15.2% were cigarette smokers; 3.6% consumed alcohol. Having an experience of mental disorder was reported by 1.9% while 11.6% suffered medical disorders. In terms of work experience in the medical profession, 59.7% had 5-9 years, 17.4% had 10-14years, and 13.9% had >15 years at work, respectively. In terms of working hours, 56.8% worked for up to 50 hours/week while 43.2% worked for >50 hours/week. Regarding professional ranking, the majority (77.8%) were registrars, (3.2%) general interns, and (19%) specialists; 70% worked >3 night shifts/month, 15.8% worked 1-3 night shifts/month with the remaining 14.2% being unscheduled for night duties. The vast majority (81.3%), did not enjoy long leave other than the official holidays. The MBI questionnaire, with its three subscales, was used to assess the prevalence of burnout syndrome. Figure 1 shows low (46.5%) and average (54%) scores for the (EE) subscale. Figure 2 shows high (78.7%) and average (21%) for the (DP) subscale. Figure 3 shows average scores (81.6%) and low (17.4%) for the PA subscale. The summated scores of the three MBI domains revealed that low level burnout was prevalent among 91.3% of the participating physicians. Assessing the degree of subjective job satisfaction via the five specific aspects of job satisfaction revealed that 39.7% of the physicians were satisfied, 39% neutral, and 7.1% very satisfied while only 11.6% reported being dissatisfied and 2.6% very dissatisfied as shown in Figure 4.
Table 1. Sample distribution of the sample according to sociodemographic and job characteristics

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>n=310</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>45</td>
<td>14.5</td>
</tr>
<tr>
<td>30-39</td>
<td>227</td>
<td>73.2</td>
</tr>
<tr>
<td>&gt;40</td>
<td>38</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>154</td>
<td>49.7</td>
</tr>
<tr>
<td>Female</td>
<td>156</td>
<td>50.3</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>79</td>
<td>25.5</td>
</tr>
<tr>
<td>Married</td>
<td>230</td>
<td>74.2</td>
</tr>
<tr>
<td>Divorced or widow</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Number of children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>19</td>
<td>8.2</td>
</tr>
<tr>
<td>1-3</td>
<td>198</td>
<td>85.7</td>
</tr>
<tr>
<td>&gt;4</td>
<td>14</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>302</td>
<td>97.4</td>
</tr>
<tr>
<td>Rural</td>
<td>8</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>47</td>
<td>15.2</td>
</tr>
<tr>
<td>No</td>
<td>263</td>
<td>84.8</td>
</tr>
<tr>
<td><strong>Alcohol drinking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>11</td>
<td>3.6</td>
</tr>
<tr>
<td>No</td>
<td>299</td>
<td>96.4</td>
</tr>
<tr>
<td><strong>Mental disorder</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>1.9</td>
</tr>
<tr>
<td>No</td>
<td>304</td>
<td>98.1</td>
</tr>
<tr>
<td><strong>Medical disorder</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>36</td>
<td>11.6</td>
</tr>
<tr>
<td>No</td>
<td>274</td>
<td>88.1</td>
</tr>
<tr>
<td><strong>Work experience</strong></td>
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<td></td>
</tr>
<tr>
<td>&lt;5 years</td>
<td>28</td>
<td>9.0</td>
</tr>
<tr>
<td>5-14y</td>
<td>239</td>
<td>77.1</td>
</tr>
<tr>
<td>&gt;15y</td>
<td>43</td>
<td>13.9</td>
</tr>
<tr>
<td><strong>Weekly hours of work</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;50 hours/week</td>
<td>176</td>
<td>56.8</td>
</tr>
<tr>
<td>&gt;50</td>
<td>134</td>
<td>43.2</td>
</tr>
<tr>
<td><strong>Professional rank</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General interns</td>
<td>10</td>
<td>3.2</td>
</tr>
<tr>
<td>Trained registrars</td>
<td>241</td>
<td>77.8</td>
</tr>
<tr>
<td>Qualified specialists</td>
<td>59</td>
<td>19.0</td>
</tr>
<tr>
<td><strong>Monthly night shifts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>44</td>
<td>14.2</td>
</tr>
<tr>
<td>1-3</td>
<td>49</td>
<td>15.8</td>
</tr>
<tr>
<td>&gt;3</td>
<td>217</td>
<td>70</td>
</tr>
<tr>
<td><strong>Number of &gt;2weeks vacation/year</strong></td>
<td>252</td>
<td>81.3</td>
</tr>
<tr>
<td>1-3</td>
<td>43</td>
<td>13.6</td>
</tr>
<tr>
<td>&gt;3</td>
<td>15</td>
<td>4.8</td>
</tr>
</tbody>
</table>
Figure 1. Prevalence of emotional exhaustion in the sample

Figure 2. Prevalence of depersonalization in the sample
Table 2 shows that all the grades of subjective job satisfaction had comparable rate ranges: (87.5%-92.7%) in relation to a low level of burnout, and equivalent rate ranges (5.6%-12.5%) in relation to an average level of burnout. There was no significant difference in the association between job satisfaction and burnout (P=0.822). Regarding the three suggested stress-relief factors, 65.5% of the physicians favored ‘leisure activities’ over the other two factors: ‘spouse support’ (44.8%), and ‘support from colleagues’ (59%), respectively as relieving elements for occupational stress as shown in Table 3.
Job satisfaction and burnout among Iraqi physicians

Table 2. Association between job satisfaction and burnout

<table>
<thead>
<tr>
<th>Levels of job satisfaction:</th>
<th>Burnout score</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (≥40)</td>
<td>Average(34-39)</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>20</td>
<td>90.9</td>
</tr>
<tr>
<td>Neutral</td>
<td>114</td>
<td>92.7</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>108</td>
<td>89.3</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>34</td>
<td>94.4</td>
</tr>
</tbody>
</table>

Table 3. Sample distribution according to the stress relief factors

<table>
<thead>
<tr>
<th>Stress relief factors</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support from spouse</td>
<td>139</td>
<td>44.8</td>
</tr>
<tr>
<td>Support from colleagues</td>
<td>183</td>
<td>59.0</td>
</tr>
<tr>
<td>Leisure activities/free time</td>
<td>203</td>
<td>65.5</td>
</tr>
</tbody>
</table>

Table 4 shows the association between burnout and stress-relief factors, where low level of burnout was similarly distributed according to the above factors at 90.6%, 89.6% and 91.6%, respectively while 9.4%, 10.4% and 8.4% of the same factors were associated with average level of burnout respectively.

Table 4. Sample distribution of burnout according to the stress relief factors

<table>
<thead>
<tr>
<th>Stress relief factors</th>
<th>Burnout score</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (≥40)</td>
<td>Average(34-39)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>Support from spouse</td>
<td>Yes</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>157</td>
</tr>
<tr>
<td>Support from colleagues</td>
<td>Yes</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>119</td>
</tr>
<tr>
<td>Leisure activities/free time</td>
<td>Yes</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>97</td>
</tr>
</tbody>
</table>

Discussion

The response rate of 92% is higher than many previous similar studies conducted in different countries. The majority of studied physicians were medical residents attached to the postgraduate training programs of the Arab and Iraqi Board for Medical Specializations. The mean age was 34 years with the majority being married with children, and living in urban areas. Cigarette smoking and alcohol consumption were lower than similar studies in western countries, which is likely due to Islamic inhibitions regarding alcohol. Chronic medical disorders affected a sizable ratio, which may be an age-related finding. The minimum ratio of mental disorder is accepted in a sample of a healthy population and it could be attributed to pre-existing anxiety and depression or may be caused by burnout. However, this finding must be verified. Although 91.3% participants reported a low level of burnout, this prevalence is much higher than the internationally reported range using the same instruments, but is similar to the prevalence found by Mohammed et al., Abdo et al. of 76% and 100%, respectively, in Egypt and 88.5% prevalence found by Agha et al. in Saudi Arabia. Regarding the MBI subscales, the studied physicians were highly affected by burnout (78.7%) in the domain (DP), moderately affected ‘average level’ of 54% and 81.6% in the domains of EE and PA, respectively. Review of 19 published studies conducted on physicians in Bahrain, Egypt, Jordan, Lebanon, Palestine, Saudi Arabia and Yemen summarized a range of prevalence rates across the three domains: 20-81% in EE, 9.2-80% in DP, and 13.3-85.8% in PA, which are comparable to our finding despite the variation in work circumstances and personal profiles of the physicians. In Saudi Arabia and the Gulf region, multi-national expatriates form a large percentage of the practicing physicians in contrast to Iraq’s health system. Many previous studies...
revealed the positive association between burnout with resident and junior physicians, which is inconsistent with our own finding.\textsuperscript{11,18,20,23} 

On the other hand, studying hard to pass Board qualification exams can place an extra burden on their heavy workload. The highest scores were reported in the DP subscale, which highlighted experiences of ‘feeling callous towards patients’, a ‘lack of energy’, and ‘overwhelmed and frustrated’ feelings. These may well reflect the nature of burnout experienced by Iraqi physicians. It also may be logical to consider the impact of insecurity and aggression on a physician’s psychological well-being in general.\textsuperscript{33,34} Again, no conclusive related studies are available. Despite being affected by burnout, the majority of the physicians were relatively satisfied with their job. The dissatisfied group was smaller, which was an unexpected result; this may be explained by a methodological bias that resulted from using the brief satisfaction scale because it did not fully explore wider issues around job satisfaction; however, the smaller number of dissatisfied physicians may reflect an overall resilience in the cohort.\textsuperscript{14,16,33}

In the present study, the interaction between job satisfaction and burnout levels among physicians was reciprocal in that where job satisfaction was high burnout was low and vice versa. For those reporting low job satisfaction and high burnout the common predisposing factors were feeling undervalued at work, mounting patients’ demands, poor chances for promotion and little or no free time for leisure activities. There is little known about the complex relationship between job satisfaction and burnout in the other Arab countries; however, it seems that correlations cannot be ignored and may be due to the shared cultural and religious background that characterize their psychological fabric.\textsuperscript{19,20,35} The suggested three factors: spouse support, colleagues support, and leisure activities/free time functioned as a way to alleviate elements of job dissatisfaction and possibly prevent being vulnerable to burnout.

The majority of the studied physicians chose having freedom in organizing family and social obligation and enjoying personal leisure as their preferred way of relieving stress, which may well protect against occupational fatigue and development of burnout. This finding is consistent with many studies.\textsuperscript{16,19,24,36-38} The low and average levels of burnout were related to those stress-relief factors in close comparable ratios range (89.6%-93.7%), the tested association was not significantly different. This finding is not irrational when considering the complicated interaction between burnout and environmental predicting and protective variables since most of the related literatures indicates that the impact of the work environment rather than the personal pros and cons.\textsuperscript{8,16,20,25,36-40} Boosting satisfaction levels and preventing burnout is an important step when planning interventions, especially in burdened countries like Iraq where the health care system has suffered significant exodus of doctor over the past three decades. It would be important to give particular attention to those physicians who reported feeling affected by burnout and job dissatisfaction or/and those who also reported the associated risk factors.\textsuperscript{13,17,40,41}

**Conclusion**

The present study found that Iraqi physicians report burnout mainly in relation to depersonalization, which is characterized by experiences of cynicism, avoiding contact with patients or treating them inanimately. Despite this, the majority report acceptable levels of job satisfaction. The association between the magnitude of job satisfaction and burnout levels was reciprocal. The most important contributing factors were the heavy irregular workload and environmental adversities. This was denoted by the fact that the majority of the physicians favored having free time for leisure activities over other possible stress-relief factors. Burnout levels were not affected by the stress-relief factors, and the association was not statistically significant. Physician job satisfaction and burnout are under researched in Arab countries, and little is known about correlated risks and/or protective factors. Thus, future larger-scale studies and effective strategies are required to support doctors in their efforts to maintain efficient health care services.\textsuperscript{13,20,40,41}

**Limitation of the study**

The absence of an equipped research center, advanced technology and lack of funding increased the burden on the research team when collecting and managing the data. Despite the co-operation of the physicians, the research team faced difficulty contacting the participants due to irregular work schedules and absence of a database for names and contact details.

**References**

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History

The Contribution of Arab Islamic Civilization to Mental Health

Walid Sarhan

Abstract

The Arabic Islamic civilization was rich in all aspects of knowledge and science, the establishment of hospitals, the classification of mental disorders and scientific foundation of psychiatry, psychology and neuroscience was started, the famous names are so many and the books written in that were overwhelming.

Keywords: None

Declaration of interest: None

Introduction

Medicine did not develop overnight. The civilizations of Egypt, Greece, Rome, Persia, India, China and the European Renaissance took up the responsibility of the flame of medical development. During the Dark Ages, the medical flame was taken up by the Arabic-Islamic world. The period between the 7th and 13th centuries has been commonly neglected, despite the remarkable developments of biomedical science of the Arabic-Islamic world with the resultant flowering of knowledge that influenced medical practice throughout Europe.1 We could say that the history of any nation is equal to the sum of the history of a few of its distinguished individuals. At every stage in Arabic medical history we can find outstanding people, whose greatest contributions and efforts cannot be underestimated.

Terminology

The modern discipline of psychology began in the 19th century. In the pre-modern context, the term 'psychology' refers to the study of the human mind and behavior, while the term 'mind' refers to human intellect and consciousness. So it must be made clear that medieval Islamic psychology does not deal with the mind only.2 Early Arab and Muslim scholars wrote extensively about human psychology. They used the term Nafs (self or soul) to indicate individual personality and the term fitrah (nature) as an indication for human nature. Nafs is a broad term that includes the qalb (heart), the ruh (spirit), the aql (intellect) and irada (will). Early Muslim scholars had a certain philosophy in their writing that encompassed all areas of human enquiry, i.e. the knowledge of all things, both divine and human.2 Therefore, Islamic psychology, or Ilm-al Nafsiat (psychological sciences), refers to the study of Nafs (self or psyche) and is related to psychology, psychiatry and neurosciences.3 Al-ilaj al-nafsy (psychological therapy) in Islamic medicine is simply defined as the study of mental illness and is equal to psychotherapy, as it deals with curing/treatment of ideas, the soul and the vegetative mind. The psychiatric physician was referred to as al-tabib al-ruhani or tabib al-qalb (spiritual physician).3 Moreover, the Islamic and Arabic psychological era includes the establishment of the first mental hospitals; the development of the first clinical approach to mental illness, and; a unique experimental approach to the study of the mind.3,4

Neuroscience and psychology

Islamic medicine stressed the need for the understanding of human mental health. The first psychiatric hospitals and insane asylums were built in the Islamic world in Baghdad in 705, Fes (the third largest city in Morocco) in the 8th century, Cairo in 800, Damascus and Aleppo in 1270.6 The most characteristic features of medieval Muslim psychotherapy were the use of clinical observations of mentally ill patients, which resulted in the provision of groundbreaking applications of moral treatment, baths, drug medication, music therapy and occupational therapy. The Muslim physician Ahmed ibn Sahl al-Balkhi (850-934) introduced the concepts of mental health and mental
hygiene. His book, Sustenance for Body and Soul (in
Arabic: Masalih al-Abdan wa al-anfus), was the first book
that discussed psychosomatic diseases with an emphasis
on mind and body: "if the nafs (psyche) gets sick, the body
may also find no joy in life with development of a physical
illness". Ahmed ibn Sahl al-Balkhi was a pioneer of
psychotherapy, psychophysiology and psychosomatic
medicine. He was the first to recognize that the body
(fever, headache) and the soul (anger, anxiety and
sadness) could be healthy, sick, balanced, or imbalanced.
He recognized two types of depression: one resulting from
known causes (physiological reasons) that can be treated
through physical medicine; and the other caused by
unknown reasons that can be treated psychologically.2
Najab ud-din Muhamed, from the 10th Century, made
careful observations of mentally ill patients with detailed
descriptions of a number of mental diseases, including
agitated depression, neurosis, priapism and sexual
impotence, psychosis (Kutrib) and mania (Dual-Kulb).5,7
Al-Balkhi and Muhamed ibn Zakariya Raz (Rhazes) were
the first known physicians to describe psychotherapy.
Razi's books (El-Mansuri and Al-Hawi) were landmarks
for the description of mental illness in the 10th Century and
provided definitions, symptoms and treatments for
problems related to mental health and mental illness. Razi
was also the director of a unique psychiatric ward in a
Baghdad hospital. Such psychiatric clinics did not exist in
Europe during that time for fear of demonic possessions.5,6

Ibn al Haytham is considered the founder of experimental
psychology and psychophysics for his distinguished book
on the psychology of visual perception, Book of Optics
(Steffens, 2006). Ibn al-Haytham was the first scientist to
discuss psychosomatic diseases with an emphasis on mind
and body: "if the nafs (psyche) gets sick, the body
may also find no joy in life with development of a physical
illness". He was the first to recognize that the body
(fever, headache) and the soul (anger, anxiety and
sadness) could be healthy, sick, balanced, or imbalanced.
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Al-Biruni was a pioneer in experimental psychology as
the first person to describe empirically the concept of
reaction time: ‘Not only is every sensation attended by a
resulting change localized in the sense-organ, which
demands a certain time, but also, between the stimulation
of the organ and consciousness of the perception an
interval of time must elapse, corresponding to the
transmission of stimulus for some distance along the
nerves’. He was also the first person to discuss in detail
such mental disorders as sleeping sickness, memory loss,
coma, meningitis, vertigo, epilepsy and hemiplegia.
Moreover, he emphasized the preservation of health
through diet and natural healing as much as on medication
or drugs.8
Al-Biruni first recognized 'physiological psychology' for
the treatment of illness involving emotions. He was a
pioneer in psychophysiology and psychosomatic
medicine, developing a system for associating changes in
the pulse rate with inner feelings. Avicenna was also a
pioneer of neuropsychiatry who first described numerous
neuropsychiatric conditions, including insomnia, mania,
hallucinations, nightmare, dementia, epilepsy, stroke,
paralysis, vertigo, melancholia and tremors11,12,13,14, Ibn
Sina, known in the West as Avicenna (981-1037). For a
thousand years, he has retained his original renown as one
of the greatest thinkers and medical scholars in history.
His most important medical works are the Qanun (Canon)
and a treatise on cardiac drugs. The ‘Qanun fi-l-Tibb’ is an
immense encyclopedia of medicine. It contains some of
the most illuminating thoughts pertaining to distinction of
mediastinitis from pleurisy; contagious nature of phthisis,
distribution of diseases by water and soil; careful
description of skin troubles; of sexual diseases and
perversions, of nervous ailments. The Canon of Medicine
(Qanun: Law of Medicine) by Ibn-Sina is one of the most
famous works in the history of medicine. It comprises a
14-volume medical encyclopedia completed in 1025
(Stanley, 1994). These volumes were used in many
medical schools; for example the University of
Montpellier, France in 1650. The Canon explains the
causes of health and disease. Ibn Sina believed that the
human body could be healthy if the causes of health and
disease are determined. He defined medicine (tibb) as the
science by which we learn the different aspects of the
human body in both health and disease.

The Arabic text of the Qanun was translated into Latin as
the Canon of Medicine by Gerard of Cremona in the 12th
Century and into Hebrew in 1279. Avicenna dedicated
three chapters of his book to neuropsychiatric disorders.
He defined madness (Junun) as a mental disorder of
reason in which reality is replaced by fantasy and he
located its origin in the middle part of the brain. In the
Canon of Medicine, Avicenna was considered the father
of the science of psychoanalysis through his extension of
the theory of temperaments to include mentality,
emotions, morality, self-awareness, movements and
dreams. His four primary temperaments are summarized
later on in the 13th Century.15
Psychotherapy

When Al-Razi was appointed as a physician-in-chief at Baghdad Hospital, he made it the first hospital in history to have a ward devoted to mentally ill patients. Razi was considered the first person to combine psychological methods and psychological explanations and to use psychotherapy in an applicable fashion. Razi was once called to treat a famous caliph who had severe arthritis. Razi advised a hot bath and, while the caliph was bathing, Razi threatened him with a knife, proclaiming he was going to kill him. This deliberate provocation increased the natural caloric, thus creating sufficient strength to dissolve the already softened humors. As a result, the caliph got up from his knees in the bath and ran after Razi. Najab ud din Muhammad, a contemporary of Razi, left many excellent descriptions of mental diseases. His carefully compiled observations of patients comprised the most complete classification of mental diseases known before then. Najab described agitated depression, obsessional types of neurosis, Nafkhae Malikholia (combined priapism, sexual impotence), Kutrib (a form of persecutory psychosis) and Dual-Kulb (a form of mania).

Avicenna often used psychological methods to treat his patients. One of his patients was a prince of Persia who had melancholia and poor appetite; he suffered from the delusion that he was a cow, and would low like a cow as he cried: ‘Kill me so that a good stew may be made of my flesh’. Avicenna was persuaded to take on the case and sent a message to the patient asking him to be happy as the butcher was coming to slaughter him. The sick man rejoiced. When Avicenna approached the prince with a knife in his hand, he asked, ‘Where is the cow so I may kill it?’ The patient then lowed like a cow to indicate where he was. ‘By order of the butcher, the patient was also laid on the ground for slaughter.’ When Avicenna approached the patient pretending to slaughter him, he said, ‘the cow is too lean and not ready to be killed. He must be fed properly and I will kill it when it becomes healthy and fat.’ The patient was then offered food, which he ate eagerly. He gradually gained strength, was rid of his delusion, and completely cured.21

Ibn-Sina recognized 'physiological psychology' in treating illnesses involving emotions. From a clinical perspective, Ibn-Sina developed a system for associating changes in the pulse rate with inner feelings, which has been viewed as a forerunner of the word-association test of Jung. He is said to have treated a very ill patient by feeling the patient's pulse and reciting aloud to him the names of provinces, districts, towns, streets and people. By noticing how the patient's pulse quickened when names were mentioned, Ibn-Sina deduced that the patient was in love with a girl whose home Ibn-Sina was able to locate by the digital examination. The man took Ibn-Sina's advice, married the girl and recovered from his illness. It is not surprising, therefore, to know that an asylum for the mentally ill had been built by the early 8th Century at Fez, Morocco, and that insane asylums were also built by the Arabs in Baghdad in AD 705, in Cairo in AD 800, and in Damascus and Aleppo in AD 1270. In addition to baths, drugs, kind and benevolent treatment given to the mentally ill, music therapy and occupational therapy were also used. These therapies were highly developed. Special live music bands were brought in daily to entertain the patients by providing singing and musical performances, with comic performers as well.

Music as therapy in Islamic civilization

According to the Dewan Bahasa and Pustaka portal, therapy is treatment of mental or physical disease through a healing process without the use of medicine or surgery (DBP 2013). Oztunc (2015:2) stated that music therapy is a psychological method of treatment and the psychological effect of listening to musical sounds. Music therapy is also a branch of emotional and physical healthcare, a natural combination that plays an effective role in psychological, emotional and moral disorders and a method for healing, comfort and tranquility.16,17 Music is a very good therapy particularly for patients with mental illness. In addition, music is an alternative treatment to using drugs, which may cause side effects. Music therapy is an instrument for professional use whether in medicine, education as well as the living environment. Human life needs balance and the basis of study and training in music therapy itself is to stabilize the whole of physical, social, communicative, intellectual and health conditions.

From the above definitions, it is clear that music therapy plays a role in influencing a person’s emotions and psychology. It can be deduced that music therapy is a treatment, which involves use of music to produce calming and soothing sounds in treating and restoring balance to a patient’s emotions. Music has been made a method and instrument of healing. Besides reducing the cost of treatment, it is effective in soothing and reducing a patient’s pain.

Scientists such as Kisilevsky studied the ability of foetus to pay attention when music is played and the effect of music on foetus heartbeat and movement.18 In fact, during the glory of the Islamic civilization, Muslim scholars such as al-Farabi, al-Kindi, Muhyiddin Ibn Arabi and Safi al-Din Abd al-Mu’min had already acknowledged music therapy as a method of healing.18
The use of music as medical therapy in Islamic civilization was much influenced by the Greek civilization. Some Islamic civilization scholars who used music therapy in medicine were al-Kindi, al-Khwánal-Sáfá', al-Rázi, al-Farabi and Ibn Sina. al-Kindi, also known as Abu Yaqúb ibn Ishaq al-Kindi was identified as the earliest scholar of the Islamic civilization to use music therapy. He lived from 801 to 870. al-Kindi adhered to Aristotle’s philosophy that music has a relationship with humans and cosmology through the earth elements of water, air, fire and soil. Ikhnán al-Sáfá’ (Brethren of Purity) held the view that there is a relationship between music and astrology. Fadlou (1995) stated that the Ikhwan first approached sound from the perspective of physicists. He discussed its nature, in terms of cause and effect, and its subdivision. He also briefly explained how physicists experience the process of perceiving sound. When it came to musical sounds and the combinations that make up the experience the process of perceiving sound. When it came to musical sounds and the combinations that make up musical composition, they would observe the biological and psychological effects of the music on the listener. The next step was the final goal of their observation on musical and psychological effects on human health due to sounds inherited in human nature, which have some functions in producing different emotions. The views of the Muslim scholar, al-Kindi, led to the application of music as a method of treatment. He was regarded to be the first Muslim scholar to realize that music has a therapeutic value when he attempted to cure a paralyzed child with music.

From the viewpoint of Abu Bakr Muhammad ibn Zakariya al-Razi (854-932M) or better known as al-Rázi, asserted that music is suitable to be used for treating only mental disorders. Abu Nasr Muhammad ibn Muhammad Farabi, or better-known al-Farabi (872-950M), and Ibn Sina (980-1037M) rejected all views, which relate music with earth elements or zodiac. Their view was that music has an effect on human health. Further, according to Ibn Sina, music may have an impact on human health due to sounds inherited in human nature, which have some functions in producing different emotions. The views of the Muslim scholar, al-Kindi, led to the application of music as a method of treatment. He was regarded to be the first Muslim scholar to realize that music has a therapeutic value when he attempted to cure a paralyzed child with music.

**Ibn-Sina**

Abu Ali Al-Husayn B. Abd Allah Ibn Sina (980–1037), also known as Avicenna in the Western world, was a Persian scholar born in Bukhara, Uzbekistan in the present day. He was primarily known as a philosopher and a physician, but he also contributed to several different areas of science in his time. Ibn-Sina explored and explained the mind, its existence, human body-mind relationship, sensation, perception etc. In his well-known book Kitab Al-Shifa' (The Book of Healing), he accepted hypnosis and used it as a treatment of mental disorders. Ibn Sina also gave psychological explanations of certain somatic illnesses, such as hallucinations, insomnia, mania, nightmare, melancholia, dementia, epilepsy, paralysis, stroke and vertigo. He believed that philosophizing was a way of helping ‘the soul reach perfection’. Ibn Sina always explained that physical and psychological illnesses linked together. He called melancholia (depression) a type of mood disorder in which the person may become suspicious and develop certain types of phobias. He claimed that anger transformed melancholia to mania. He also certified that humidity inside the head can affect mood disorders. This happens with the amount of breath change. Happiness increases the breath, which leads to increased moisture inside the brain, but if this moisture goes beyond its limits, the brain will lose control over its rational thought leading to mental disorders. Ibn Sina also wrote about symptoms and treatment of love sickness (Ishq), nightmare, epilepsy, and weak memory. He is the first person to develop an association between emotions and pulse rate. He also used other psychological methods to treat his patients. He established free hospitals and treatments including surgery, hot baths, herbs, hypnosis (Al Wahm Al-Amil) and aromatherapy.

Ibn Sina (or Avicenna) was primarily a philosopher with amusing knowledge, who dealt in all aspects of art of medicine, astronomy, poetry, music and psychology. This giant, with an encyclopedic knowledge, has dealt in almost all scientific branches or praxis with great success. Numerous statements of his have been cornerstone of many sciences for centuries; and, some of them are (in the era of computers and Internet) still current. The best known treatise on medicine of his is El-Kanun, consisting of five volumes, wherein all medical achievements (including psychology, psychiatry and neurology) of that period were described clearly. In his psychology, Ibn Sina (Avicenna) analyses the essence of human soul, mind, psychical streams, intellectum, dreams and prophecy, man’s desires etc. in details. It is unnecessary to point out how much these items are actual in the contemporary psychology. Ibn al-Nefis has described systematically the symptoms and recovery of ‘head sick’ (including headaches, cerebral sick like cranitis, letargy, coma, demency, melancholy, insomnia, nightmares, epilepsy, appoplexy, paralysis, spasm and many others) in his Mujez al-Kanun, which is synopsis of Ibn Sina Kanun. We need much time to learn the magnificence of this philosopher, which is best known as the great one among the physicians. It is our task to enable future generations not only to know his works exist, but also to realize the
essence of this marvelous genius because there are very few people that can be compared to him.

**Abu Bakr Mohammed ibn Zakariya al-Razi**

Known in the West as Rhazes, he was born in al-Rayy outside Tehran. He is considered one of the greatest physicians Islam has ever produced. He traveled widely, visiting famous medical centers of his time in Jerusalem, Cairo, and Cordova. In 907, he was appointed director of a large hospital in Baghdad and a court physician as well. He wrote 237 books, of which 36 have survived. The most famous of his works is Liber Continens, a medical encyclopedia. In his theories, al-Razi was a Galenist; in practice, he was guided more by the principles of Hippocrates. He was known for taking detailed histories from his patients and for his keen observational skills. al-Razi combined psychological methods and physiological explanations. He used psychotherapy in a primitive but dynamic fashion.

As the director of the hospital in Baghdad, he established a special section for the treatment of people with mental illness. He treated his patients with respect, care, and empathy. As part of discharge planning, each patient was given a sum of money to help with immediate needs. This was the first recorded reference to psychiatric aftercare and, perhaps, to the existence of a psychiatric consultation service in a general hospital. Al-Razi is also known for his contributions to psychiatric ethics. In his treatise “Upon the Circumstances Which Turn the Head of Most Men from the Reputable Physicians,” al-Razi set clear standards for the professional practice of physicians. He advised physicians on how to retain the respect and confidence of their patients. At the same time, he advised patients to evaluate their physicians and demand from them a high level of integrity. He further advised patients to avoid physicians who are actively addicted to wine, a clear recognition of the problem of physician impairment over 1,000 years ago. Al-Razi’s words on this subject are no less applicable today.

Al Razi was a Hakim, an alchemist and a philosopher. In medicine, his contribution was so significant that it can only be compared to that of Ibn Sina. Some of his works in medicine e.g. Kitab- Mansoori, Al-Hawi, Kitab al-Mulooki and Kitab al-Judari al- Hasabah earned everlasting fame. Al-Razi was the first in Islam to write a book based on home medicines (remedial) advisor entitled Man la Yahduruhu Teb for the public. In his book Mnafi’ al-Aghthiyyah, al-Razi followed a pattern that had been introduced earlier by Galen, but in it, al-Razi attempted to correct several errors made by Galen himself. The development of professional pharmacy, as a separate entity from medicine, started in Islam under the patronage of the early Abbasiiyah caliphs in Baghdad. This first clear-cut separation of the two professions, and the recognition of the independent, academically oriented status of professional pharmacy materialized in the Abbasiiyah capital (Baghdad) and Al Razi was one of the few pharmacists who added very valuable contributions to medicine and pharmacy while most of Europe was still living in the Dark Ages.

**Abu Zayd al-Balkhi**

Of the many books ascribed to him in the al-Fihrist by Ibn al-Nadim, one can note the Excellency of mathematics on certitude in astrology. His Figures of the Climates (Suwar al-aqalim) consisted chiefly of geographical maps. He also wrote the medical and psychological work, Masalih al-Abdan wa al-Anfus (Sustenance for Body and Soul).

**Mental health and mental illness**

In Islamic psychology, the concepts of mental health and ‘mental hygiene’ were introduced by Abu Zayd al-Balkhi, who often related it to spiritual health. In his Masalih al-Abdan wa al-Anfus (Sustenance for Body and Soul), he was the first to successfully discuss diseases related to both the body and the soul. He used the term al-Tibb al-Ruhani to describe spiritual and psychological health, and the term Tibb al-Qalb to describe mental medicine. He criticized many medical doctors in his time for placing too much emphasis on physical illnesses and neglecting the psychological or mental illnesses of patients, and argued that ‘since man’s construction is from both his soul and his body, therefore, human existence cannot be healthy without the ishtibak [interweaving or entangling] of soul and body.’ He further argued that ‘if the body gets sick, the nafs [psyche] loses much of its cognitive and comprehensive ability and fails to enjoy the desirous aspects of life’ and that ‘if the nafs gets sick, the body may also find no joy in life and may eventually develop a physical illness.’ Al-Balkhi traced back his ideas on mental health to verses of the Qur’an and hadiths attributed to Muhammad.

**Cognitive and medical psychology and cognitive therapy**

Abu Zayd al-Balkhi was the first to differentiate between neurosis and psychosis, and the first to classify neurotic disorders and pioneer cognitive therapy in order to treat each of these classified disorders. He classified neurosis into four emotional disorders: fear and anxiety, anger and aggression, sadness and depression, and obsession. He
Further classified three types of depression: normal depression or sadness (huzn), endogenous depression originating from within the body, and reactive clinical depression originating from outside the body. He also wrote that a healthy individual should always keep healthy thoughts and feelings in his mind in the case of unexpected emotional outbursts in the same way drugs and first aid medicine are kept nearby for unexpected physical emergencies. He stated that a balance between the mind and body is required for good health and that an imbalance between the two can cause sickness. Al-Balkhi also introduced the concept of reciprocal inhibition (al-ilaj bi al-did), which was re-introduced over a thousand years later by Joseph Wolpe in 1969.29

Psychophysiology and psychosomatic medicine

The Muslim physician Abu Zayd al-Balkhi was a pioneer of psychotherapy, psychophysiology and psychosomatic medicine. He recognized that the body and the soul can be healthy or sick, or ‘balanced or imbalanced’; and that mental illness can have both psychological and/or physiological causes. He wrote that imbalance of the body can result in fever, headaches and other physical illnesses, while imbalance of the soul can result in anger, anxiety, sadness and other mental symptoms. He recognized two types of depression: one caused by known reasons such as loss or failure, which can be treated psychologically through both external methods (such as persuasive talking, preaching and advising) and internal methods (such as the ‘development of inner thoughts and cognitions which help the person get rid of his depressive condition’); and the other caused by unknown reasons such as a ‘sudden affliction of sorrow and distress, which persists all the time, preventing the afflicted person from any physical activity or from showing any happiness or enjoying any of the pleasures’ which may be caused by physiological reasons (such as impurity of the blood) and can be treated through physical medicine.28 He also wrote comparisons between physical disorders with mental disorders, and showed how psychosomatic disorders can be caused by certain interactions between them.29

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الملخص

الحضارة العربية الإسلامية، كانت رائدها في المعرفة والعلوم بشكل عام، وعميقه في مجال الصحة النفسية، وقد بات ببناء المستشفيات النفسية وتصنيف الأمراض النفسية، ووضع الأساتذة المحلي للطب النفسي والعلوم العصبية، وقد أثر صيت العديد من العلماء بحيث يصب حصرهم، كما أن الكتب المخطوطة التي وضعت في العصور الذهبية للحضارة الإسلامية تفوق الخيال.

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The Ability of Maladaptive Schemas in Prediction of Intellectual Extremism
Amani Moh'd Al-Farajat, Hussein Al-sharah

المتقبلاً

هذّه الدراسة إلى استقصاء القدرة التنظيمية للمخططات المعرفية اللاكلاسيفية في الميل للطرف الفكري. تألفت العينة من (85) متلفاً فكرياً موقعاً في مراكز الإصلاح والتأهيل الإزمنة التابعة لوزارة الأمن العام. ضمن مطلة زاوية الداخلية، من هم متهمين بقضايا يتلحن بالمثل الفكري والأعمال. تم تقييم مقياس

أفراد العينة من المتنفسين المعوقين، وهي: مقياس المخططات المعرفية اللاكلاسيفية، ومقياس الميل للطرف الفكري. أظهرت النتائج أن أكثر المخططات المعرفية اللاكلاسيفية تتأثرًا مما تحمل الحركات العاطفية، وأظهرت نتائج تحليل أموس إلى وجود قدرة تنظيم الزبائن نحو التطرف الفكري، وقد كشف عملنا conclaves وجود لأعداء المخططات المعرفية اللاكلاسيفية (مخطط الحركات العاطفية، مخطط الضجع للأخرين، مخطط الهشامة للأولى أو المرجع) إلى الميل للطرف الفكري. في ضوء هذه النتائج يمكن النتائج بمرور عمليات نوعية محدثة للمتطرفين فكرياً والأعمال.

الكلمات المفتاحية: المخططات المعرفية اللاكلاسيفية، التطرف الفكري.

المقدمة

إن بعض خلاصات أفراد الميل هو اختلاف مشابه الفكر والتعلم، فكل من عليه تجربة خاصة التي ساهمت في تعزيز اعتزازه في المواجهة Ventures.

والناتج، فإنه يستقل ككل من يُحقّق به نفس نقطة، وينتهي بها، إذا نظرت إلى نتائج التحليل.

وقد أظهرت النتائج أن أغلب أفراد العينة أظهروا أسلوبية في مواجهة الأفكار، وتموازن التشكيلة في التفكير. وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يعود إلى عقبات تتعلق ب氛围، ويفتح فيما بعد إزاحة وتفاقم. وقد يحلق الأفكار أو الرسوم في صراعات مع مباشرة، ويزعم بدلاً من أيديه، لأنه أصبح مساعدًا لأفكاره.

كلاً:
إن ما تميز برؤية الدائرة الحالية أنها تتطلب من افراض مستهدفة. وهو ما يسهل لمواجاة مواقف السلامة والتشريعات في الواقع البشري.

وتعد السلطة الوالدية أول مصادر التشريعة في واقع الفرد، فقد خلالها

而出 طول صورتها، ويتوقف بأزامها ونتبهاء في بداية الفرد، وهو

ما سبب لمواجاة مواقف السلامة والتشريعات القادمة في الواقع البشري.

كما ذلك فإن علاقة الفرد بالردود له تأثير على تأثير التفكير، ومن أهمية صور الصور التي تأثرت في هذا النهج لمساعدة التفاهم أو التدفق في التفكير العقلاني، وقد يكون هذا أيضاً ما يتيح للفكر والتطور في صراع مع الرسوم.

 דרך أن تقبله هو أيضاً، وأنه أصبح مساعدً

لكلاًما

وقد أظهرت الدراسات أن هناك علاقة بين التفكير العقلاني، وتعدد الإشكال من كلاهما، وينتهي بها، إذا نظرت إلى نتائج التحليل.

وقد أظهرت النتائج أن أغلب أفراد العينة أظهروا أسلوبية في مواجهة أفكاره، وتموازن التشكيلة في التفكير. وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة لوجود عقبات في التفكير العقلاني، وقد يكون هذا نتيجة L

كلاًما

النتائج

إذا تتبث الثواب، فإن ذلك يتيح للفكر الفكري، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، وتمتاز في جميع الأفكار، W

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لا يوجد نص يمكن قراءته بشكل طبيعي من الصورة المقدمة.
لا يوجد نص يمكن قراءته بشكل طبيعي.
السياستية، ومحاولة فرض آرائهم السياسية على الآخرين، ورفعها في تدريجية من خلال التغييرات الاجتماعية والثقافية والاقتصادية.

وقد فسرProvince 25 التطرف على أنه فكر وسلوك عقلي، وأنه قد يكون ترديًا في فهم الآخرين، مما يضاعف عدالة السعي نحو تحقيق المصالحة في المجتمعات التي تعيش فيها. هذا يتطلب من الأفراد ممارسة التسامح الاجتماعي لتعاطفهم بينهم.

ويعتبر Province 26 التطرف واحدًا من القوى المتداولة والعقلية، والذي يمكن أن يتفاعل مع الأفكار السياسية والاجتماعية، مما يترجم في تكوين المواقف الاجتماعية للشخصية، ويعمل على التعبير عن نواحي نظرية التطور، والتي يعترف بها في هذه الحالة.

ويزيد من معنى التدخل الاجتماعي، وهو نشاط يעסק في تحسين الوضع الاجتماعي في المجتمعات، ويجب أن يكون توازنًا بين التطور الاجتماعي والتنمية الاقتصادية.

واستير الباحثة أن التلفظ الذي يترك كل它的 المناسبين ويثير مناهجهم لا يختلف عن التطرف الذي يبدو واضحيًا، ولهذا يعتبر الإنترنت من أشكال التطرف الاجتماعي، حيث ينشر أفكارًا ونصوصًا تتضمن إثارة الخوف.

ولذلك فإن التطرف الاجتماعي هو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

ومع ذلك، تشير النتائج إلى أن التطرف الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

ويعتبر Province 27 التطرف في الأدب، حيث أن قراءته هو إثراء من خلال عودة الأدب في عالم الثقافة، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

وقد قام Provincial Commission للحروف الأمريكية Province 18، مما أطلق عليه بـ "ال الفكر العنصري"، هو فكر يسعى إلى تطبيق الواقع النفي السائد، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

وقد أشار الباحثون على أن التطرف، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

وقد مكرر Provincial Commission للحروف الأمريكية Province 18، مما أطلق عليه بـ "ال الفكر العنصري"، هو فكر يسعى إلى تطبيق الواقع النفي السائد، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

ثانياً: مدلل للنطرال الفكري

هناك أكثر من النظريات حول العلاقة بين أساليب مواجهة المواجهات، وسياستية الصراع، وقد تأثرت بالإجابة، وقد أفدنت الدراسات السيوية، وسنتم على أنه أن التطرف، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

وقد أشار Provincial Commission للحروف الأمريكية Province 18، مما أطلق عليه بـ "ال الفكر العنصري"، هو فكر يسعى إلى تطبيق الواقع النفي السائد، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

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وقد أشار Provincial Commission للحروف الأمريكية Province 18، مما أطلق عليه بـ "ال الفكر العنصري"، هو فكر يسعى إلى تطبيق الواقع النفي السائد، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.

وقد أشار Provincial Commission للحروف الأمريكية Province 18، مما أطلق عليه بـ "ال الفكر العنصري"، هو فكر يسعى إلى تطبيق الواقع النفي السائد، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي، وهو نشاط يسعى إلى إحداث التغيير الاجتماعي.
لا يمكنني قراءة النص باللغة العربية بشكل طبيعي. إذا كنت بحاجة إلى المساعدة في شيء آخر، فأخبرني بذلك.
لا يمكنني قراءة النص العربي.
الجدول رقم 2. قيم معاملات ارتباط كل فقرة من قترات مقياس المخططات المعرفية اللاتكيفية بالدرجة على البعد وبالدرجة الكلية على المقياس.

<table>
<thead>
<tr>
<th>رقم الارتباط بالبعد</th>
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<td><strong>0.64</strong></td>
<td><strong>0.64</strong></td>
<td><strong>0.80</strong></td>
</tr>
<tr>
<td><strong>0.69</strong></td>
<td><strong>0.70</strong></td>
<td><strong>0.77</strong></td>
<td><strong>0.70</strong></td>
<td><strong>0.86</strong></td>
</tr>
<tr>
<td><em>0.59</em>*</td>
<td><strong>0.65</strong></td>
<td><strong>0.84</strong></td>
<td><strong>0.65</strong></td>
<td><strong>0.79</strong></td>
</tr>
<tr>
<td><strong>0.61</strong></td>
<td><strong>0.60</strong></td>
<td><strong>0.65</strong></td>
<td><strong>0.67</strong></td>
<td><strong>0.81</strong></td>
</tr>
<tr>
<td><em>0.52</em>*</td>
<td><strong>0.55</strong></td>
<td><strong>0.66</strong></td>
<td><strong>0.68</strong></td>
<td><strong>0.74</strong></td>
</tr>
<tr>
<td><strong>0.76</strong></td>
<td><strong>0.55</strong></td>
<td><strong>0.71</strong></td>
<td><strong>0.58</strong></td>
<td><strong>0.68</strong></td>
</tr>
<tr>
<td><em>0.41</em>*</td>
<td><strong>0.58</strong></td>
<td><strong>0.72</strong></td>
<td><strong>0.67</strong></td>
<td><strong>0.65</strong></td>
</tr>
<tr>
<td><strong>0.76</strong></td>
<td><strong>0.82</strong></td>
<td><strong>0.63</strong></td>
<td><strong>0.55</strong></td>
<td><strong>0.67</strong></td>
</tr>
<tr>
<td><strong>0.64</strong></td>
<td><strong>0.59</strong></td>
<td><strong>0.50</strong></td>
<td><strong>0.81</strong></td>
<td><strong>0.41</strong></td>
</tr>
<tr>
<td><strong>0.77</strong></td>
<td><strong>0.72</strong></td>
<td><strong>0.55</strong></td>
<td><strong>0.55</strong></td>
<td><strong>0.77</strong></td>
</tr>
<tr>
<td><strong>0.69</strong></td>
<td><strong>0.50</strong></td>
<td><strong>0.76</strong></td>
<td><strong>0.76</strong></td>
<td><strong>0.81</strong></td>
</tr>
<tr>
<td><strong>0.65</strong></td>
<td><strong>0.58</strong></td>
<td><strong>0.64</strong></td>
<td><strong>0.64</strong></td>
<td><strong>0.60</strong></td>
</tr>
<tr>
<td><strong>0.66</strong></td>
<td><strong>0.81</strong></td>
<td><strong>0.77</strong></td>
<td><strong>0.77</strong></td>
<td><strong>0.88</strong></td>
</tr>
<tr>
<td><strong>0.71</strong></td>
<td><strong>0.72</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.56</strong></td>
</tr>
<tr>
<td><strong>0.72</strong></td>
<td><strong>0.59</strong></td>
<td><strong>0.67</strong></td>
<td><strong>0.68</strong></td>
<td><strong>0.49</strong></td>
</tr>
<tr>
<td><strong>0.63</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.76</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.59</strong></td>
</tr>
<tr>
<td><em>0.50</em>*</td>
<td><strong>0.59</strong></td>
<td><strong>0.70</strong></td>
<td><strong>0.59</strong></td>
<td><strong>0.62</strong></td>
</tr>
<tr>
<td><strong>0.69</strong></td>
<td><strong>0.80</strong></td>
<td><strong>0.65</strong></td>
<td><strong>0.75</strong></td>
<td><strong>0.58</strong></td>
</tr>
<tr>
<td><em>0.59</em>*</td>
<td><strong>0.55</strong></td>
<td><strong>0.60</strong></td>
<td><strong>0.75</strong></td>
<td><strong>0.63</strong></td>
</tr>
</tbody>
</table>

(*) وتعتبر مؤشرات جيدة للحكم على صدق الأداة. كما تم حساب
**دمالة عند (0.01) (α = 0.05)**

**ستوضح من الجدول (2) أن قيم معاملات الارتباط بين قترات المقياس مع
الدرجة الكلية قد تراوحت بين (0.40-0.89) وبين الفقرة والمعيار الذي
تمناه الباحث (0.41، 0.89) وهي جميعاً قيم دالة إحصائية عند مستوى

(3) يوضح ذلك: **
يمكننا قراءة الجدول التالي للحصول على قيم معاملات الارتباط بين أبعاد مقياس الملاحظات المعرفية اللاتيكية، ويصعب الاستنتاج إنما من الجدول (3) أن جميع قيم معامل الارتباط بين الأبعاد دالة إحصائيًا، وتراوحت بين (0.51 - 0.80)، بينما تراوحت معاملات الارتباط بين الأبعاد والمقاييس بين (0.56 - 0.84) وجمعها دالة إحصائيًا، وهذا مؤشر على صدق النتائج للمقياس.

ثبات مقياس الملاحظات المعرفية اللاتيكية: تم استخراج معامل الثبات باستخدام الطرق التالية: طريقة إعادة الاختبار على عينة مكونة من (30)
الجدول 4. معاملات الثبات للمقياس بأبعاد الفرعية ودلائله الكلية باستخدام معادلة كرونباخ ألفا وطريقة التجزئة النصفية

<table>
<thead>
<tr>
<th>الثبات</th>
<th>عدد الفترات</th>
<th>إعادة الاختبار</th>
<th>كرونباخ الفا</th>
</tr>
</thead>
<tbody>
<tr>
<td>الحرمون العاطفي</td>
<td>0.79</td>
<td>0.76</td>
<td>0.81</td>
</tr>
<tr>
<td>النقص/العيب</td>
<td>0.82</td>
<td>0.89</td>
<td>0.81</td>
</tr>
<tr>
<td>عدم الثقة/الإساءة</td>
<td>0.80</td>
<td>0.66</td>
<td>0.79</td>
</tr>
<tr>
<td>الجنس/العمر</td>
<td>0.86</td>
<td>0.87</td>
<td>0.79</td>
</tr>
<tr>
<td>العزلة الاجتماعية/الأعراب</td>
<td>0.80</td>
<td>0.80</td>
<td>0.77</td>
</tr>
<tr>
<td>الخضوع للذين والمرض</td>
<td>0.77</td>
<td>0.79</td>
<td>0.66</td>
</tr>
<tr>
<td>التشكيل/ذات غير المطورة</td>
<td>0.76</td>
<td>0.78</td>
<td>0.76</td>
</tr>
<tr>
<td>الاستجابة/العظمة</td>
<td>0.76</td>
<td>0.77</td>
<td>0.77</td>
</tr>
<tr>
<td>عدم كفاءة ضبط الذات/الاضطباب الذاتي</td>
<td>0.80</td>
<td>0.75</td>
<td>0.79</td>
</tr>
<tr>
<td>الخضوع للذين والمرض</td>
<td>0.77</td>
<td>0.77</td>
<td>0.88</td>
</tr>
<tr>
<td>التضحية بذاتي</td>
<td>0.78</td>
<td>0.70</td>
<td>0.76</td>
</tr>
<tr>
<td>الكل</td>
<td>0.82</td>
<td>0.75</td>
<td>0.74</td>
</tr>
</tbody>
</table>

تشير نتائج الجدول (4) إلى أن معاملات الثبات باستخدام معادلة كرونباخ ألفا تراوحت بين (0.75-0.89) وبدقة الاختيار (0.05). وتحديد (0.76-0.88) ودقة الاختيار (0.05).

المقياس المقبول للظروف الفكرية:
تم تطوير مقياس الظروف الفكرية بالاستناد إلى الأبعاد التحليلية المتعلقة بالوضع والإثارة على الدراسة المتدرجة، مثل دراسة الرواية، ودراسة التزكيم، ودراسة أنواع وسائط. وقد تكون المقياس في صورة واحدة من (34) فقرة، وجزء من (4) أبعاد وهي (الظروف السياسية، والظروف الاجتماعية، والظروف الدینية، والظروف الديموغرافية).

صق المقياس: تم إيجاد مؤشرات صدق المقياس باستخدام الطرق التالية:
الجدول 5. نتائج اختبار (ت) لفحص دلالة الفرق بين متوسطي المجموعتين على مقياس التطرف الفكري

<table>
<thead>
<tr>
<th>مستوى الدلالة</th>
<th>الفرق في المتوسطين</th>
<th>الإحرازات المعيارية</th>
<th>المتوسط الحسابي</th>
<th>العدد</th>
</tr>
</thead>
<tbody>
<tr>
<td>المجموعة المتطرفون</td>
<td>-23.23</td>
<td>1.40</td>
<td>100.55</td>
<td>15</td>
</tr>
<tr>
<td>المجموعة غير المتطرفون</td>
<td>1.81</td>
<td>59.44</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

ذات دلالة إحصائية عند مستوى (.05 ≤ α)

أشارت نتائج الجدول (5) إلى وجود فرق ذات دلالة إحصائية بين متوسطي المجموعتين المتطرفة وغير المتطرفة في التطرف الفكري، فقد بلغت قيمة (ت) (23.23) ومستوى الدلالة (0.00)، وبالتالي يتضح أن متوسط المجموعة المتطرفة (100.55) أعلى من متوسط المجموعة غير المتطرفة (59.44).

الجدول رقم 6. قيم معاملات ارتباط كل فقرة من فئات مقياس التطرف الفكري بالدرجة الكلية للمقياس

<table>
<thead>
<tr>
<th>رقم الفقرة</th>
<th>رقم الفقرة</th>
<th>رقم الفقرة</th>
<th>رقم الفقرة</th>
<th>رقم الفقرة</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0.76</strong></td>
<td><strong>0.71</strong></td>
<td><strong>0.76</strong></td>
<td><strong>0.75</strong></td>
<td><strong>0.86</strong></td>
</tr>
<tr>
<td>31</td>
<td>25</td>
<td>19</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td><strong>0.64</strong></td>
<td><strong>0.77</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.72</strong></td>
<td><strong>0.76</strong></td>
</tr>
<tr>
<td>32</td>
<td>26</td>
<td>20</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td><strong>0.70</strong></td>
<td><strong>0.70</strong></td>
<td><strong>0.75</strong></td>
<td><strong>0.64</strong></td>
<td><strong>0.74</strong></td>
</tr>
<tr>
<td>33</td>
<td>27</td>
<td>21</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td><strong>0.80</strong></td>
<td><strong>0.65</strong></td>
<td><strong>0.65</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.80</strong></td>
</tr>
<tr>
<td>34</td>
<td>28</td>
<td>22</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td><strong>0.70</strong></td>
<td><strong>0.62</strong></td>
<td><strong>0.70</strong></td>
<td><strong>0.73</strong></td>
<td><strong>0.76</strong></td>
</tr>
<tr>
<td>29</td>
<td>23</td>
<td>17</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td><strong>0.74</strong></td>
<td><strong>0.64</strong></td>
<td><strong>0.82</strong></td>
<td><strong>0.73</strong></td>
<td><strong>0.76</strong></td>
</tr>
<tr>
<td>30</td>
<td>24</td>
<td>18</td>
<td>19</td>
<td>13</td>
</tr>
</tbody>
</table>

ذات دلالة إحصائية عند مستوى (.01) **

يتضح من الجدول (6) أن قيم معاملات الارتباط بين فئات مقياس التطرف الفكري بالدرجة الكلية للمقياس وفقًا لدالة (0.88) وهي جمجمًا قيم دالة إحصائية عند مستوى (.01) **، وتعتبر مترشحات جيدة للحكم على صدق الأداة. كما قامت الباحثة بحساب متعلقات الارتباط بين الأبعاد ببعضها، وبالدالة الكلية للمقياس، والجدول (7) يوضح ذلك.

الجدول 7. قيم متعلقات الارتباط بين أبعاد مقياس التطرف الفكري بينها البعض وبدلاً من الكلية

<table>
<thead>
<tr>
<th>القاهرة</th>
<th>الأيديولوجي</th>
<th>الاجتماعي</th>
<th>السياسي</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.87</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0.77</td>
<td>-</td>
<td>-</td>
<td>0.65</td>
</tr>
<tr>
<td>0.70</td>
<td>-</td>
<td>0.71</td>
<td>0.65</td>
</tr>
<tr>
<td>0.71</td>
<td>-</td>
<td>0.70</td>
<td>0.65</td>
</tr>
</tbody>
</table>

ذات دلالة إحصائية عند مستوى (.01) **

α = 0.01
يُضح من الجدول (7) أن جميع قيم معامل الارتباط بين الأبعاد عامة لاصقية، وتأرخ بين (0.65 - 0.79)، بينما تراوحت مسارات الارتباط بين الأبعاد والمقياس من (0.56 - 0.84) وجميعها لاصقية، وهذا مؤشر على صدق البناء للمقياس.

تشير نتائج الجدول (8) إلى أن مسارات القيمة بيجيادة كروينها ألفا تراوح بين (0.74-0.86)، وعلى درجة التكلفة (0.81) ≥α. وقد تراوحت على القيمة ونعتجامة بين القيمة ونعتجامة بين القيمة (0.78-0.82)، وبلغت للدرجة (0.80) ≥α. وحزم معها حصول الإجابة على الأهداف بشكل كامل، وتمثل هذه القيمة في اللغة التدريسية، مثل هذه القياس، ويعود البناء للمقياس.

Font- arabic
جدول 9. المتوسطات الحسابية والانحرافات المعيارية والنسب المئوية لجميع أبعاد المخططات المعينة اللافلونية

<table>
<thead>
<tr>
<th>المخطط المعين</th>
<th>الابتدائية</th>
<th>بعد التدريب</th>
</tr>
</thead>
<tbody>
<tr>
<td>الاستطلاع/الظلمة</td>
<td>3.10</td>
<td>2.98</td>
</tr>
<tr>
<td>الحرص العاطفي</td>
<td>2.96</td>
<td></td>
</tr>
<tr>
<td>التضحية بالذات</td>
<td>2.90</td>
<td></td>
</tr>
<tr>
<td>التشاكي/ذات غير المتطورة</td>
<td>2.74</td>
<td></td>
</tr>
<tr>
<td>عدم الثقة/الإساءة</td>
<td>2.74</td>
<td></td>
</tr>
<tr>
<td>النفس/العيب</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>التشهير/ذات غير المتطورة</td>
<td>2.63</td>
<td></td>
</tr>
<tr>
<td>عدم الثقة/الإساءة</td>
<td>2.63</td>
<td></td>
</tr>
<tr>
<td>العزلة الاجتماعية/الاغتراب</td>
<td>2.55</td>
<td></td>
</tr>
<tr>
<td>الهجر/عدم البقاء</td>
<td>2.18</td>
<td></td>
</tr>
<tr>
<td>الحضور للأخرين</td>
<td>2.16</td>
<td></td>
</tr>
<tr>
<td>الهشاشة للأذى أو المرض</td>
<td>2.06</td>
<td></td>
</tr>
<tr>
<td>القلق الاجتماعي/الإجراام</td>
<td>2.06</td>
<td></td>
</tr>
<tr>
<td>المنخفض</td>
<td>1.85</td>
<td>1.62</td>
</tr>
<tr>
<td>المنخفض</td>
<td>1.85</td>
<td></td>
</tr>
<tr>
<td>المنخفض</td>
<td>1.85</td>
<td></td>
</tr>
<tr>
<td>المنخفض</td>
<td>1.85</td>
<td></td>
</tr>
</tbody>
</table>

ثانيًا: النتائج المتعلقة بالسؤال الثاني: "ما مساهمة المخططات المعينة اللافلونية وعوامل الشخصية والاحتاجات النفسية مجمعة في تفسير الميل للترف الفكري لدى الموقفيين في السجون الأردنية؟" تم استخدام برنامج أموس لفحص الدرجة التنبؤية بين التأثيرات الداخلية للمعامل، وتم اعتبار العلاقات المباشرة بين المتغيرات في النموذج الإفتراضي، والجدول (10) يوضح ذلك:

جدول 10. العلاقات المباشرة بين متغيرات النموذج الإفتراضي

<table>
<thead>
<tr>
<th>المتغير</th>
<th>القوة</th>
<th>القيمة الإحصائية</th>
</tr>
</thead>
<tbody>
<tr>
<td>الحرص العاطفي</td>
<td>0.47</td>
<td>6.34</td>
</tr>
<tr>
<td>الحضور للأخرين</td>
<td>0.43</td>
<td>7.65</td>
</tr>
<tr>
<td>الهشاشة للأذى أو المرض</td>
<td>0.21</td>
<td>3.68</td>
</tr>
</tbody>
</table>

مناقشة النتائج

مناقشة نتائج السؤال الأول الذي ينص على: "ما المخططات المعينة الأكثر شيوعًا لدى المتفجرين في النموذج؟"
التطريب المركبة قد تشير إلى إقرار إنشاء الحجج من قبل الوالدين، عندما طلب من طالب، وفقًا لبعض فيه للمرة والاستقلالية بدون أية حدود، ما لم يبدأ من إنشاء حجاته الإشعاعية الأساسية المتصلة في الاستقلالية والحدود الواضحة والشاملة. حيث يتعين على إنهاء التطور في مراقبة النصاب، إذا رأى أنه قد تكون خيارات الفترات المقربة تتعلق بتغيير في زمن الفطر، إذا تم تأجيل هذه الحجج من قبل الحجج بوجود ميعاد آخر.

ويشير مخطط الحجج الإشعاعي إلى خيارات التعاون المترتبة التي تمثل تحمل الحجج الإشعاعي، بالتناوب في حياة الأشخاص، ومن الأماكن المهمة في الحياة. فإن مخطط الحجج يطلق لحجة على ما يتم من خلال الأخلاق كالخبراء، ويعزز بعد إعطائه أن الخلافات السلبية استجابة لإهجاء الآلة غير متلازمة تُعرض مع الإيجابيات والصعوبات، وتأتي نتيجة الدير، وحالة الديار أنها لا توفر إلا في النصوص.

وتأتي نتيجة الإجراءات التي تظهر على أتيت في الحجج الإشعاعية، وما هو تجرح المحاكم المترتبة، والكامل، والنهائي ضروري للتحقيق. إن النص هو ما ينادي، وتشمل بأسلوب فك الأشرار، ومن أهمية، وتنحن في الخصائص. محتوى هذه النتيجة، من خلال الحجج، أو أن يمكن استخدام الحجج الإشعاعية، التي يظهر أن نتائج الدراسات الإشعاعية، وثبوت سوء حساسية، والطريقة المتصلة في حياة الأفراد، وكيال ما قد يكون في الحجج الإشعاعية، فإنها توفر تعاملاً يحظر في الحجج الإشعاعية.

النصوص:
في ظل ما توصلت له دراسة الحالية، يمكن تقدم النصوص التالية:

- 1. عمل بحث توعية تضيف المترتبين فكياً لاحتفالية في الحجج، وتعزز على خبراتهم وتجارب الفتيان.

- 2. تتعلق رسالة علم على أرض الواقع. يشمل من وجودها منذ سنة 2004 إلا أن المثير، التي موطن في مجال علاقات الأشخاص في نمو الأشخاص، والיסט، وتعزز احترام الحجج الإشعاعية، وهي تأتي إيحاء إجابة. يمكن تقييم مساهمة مخططة الحجج الإشعاعية، في إنشاء الحجج الإشعاعية، وهو Wickham لحجة على إيجاد هذه الحجج الإشعاعية، أو على ما يمكن استخدام الحجج الإشعاعية، التي يظهر أن نتائج الدراسات الإشعاعية، وثبوت سوء حساسية، والطريقة المتصلة في حياة الأفراد، وكيال ما قد يكون في الحجج الإشعاعية، فإنها توفر تعاملاً يحظر في الحجج الإشعاعية.

- 3. تقدم متغيرات الأشخاص في النمو المعرفي، والبحث، والمحترف المحاكم، التي تذكير بحث الحجج الإشعاعية، من حيث التقنين الحجج الإشعاعية، وتشمل بأسلوب فك الأشرار، ومن أهمية، وتنحن في الخصائص. محتوى هذه النتيجة، من خلال الحجج، أو أن يمكن استخدام الحجج الإشعاعية، التي يظهر أن نتائج الدراسات الإشعاعية، وثبوت سوء حساسية، والطريقة المتصلة في حياة الأفراد، وكيال ما قد يكون في الحجج الإشعاعية، فإنها توفر تعاملاً يحظر في الحجج الإشعاعية.

- 4. تقدم متغيرات الأشخاص في النمو المعرفي، والبحث، والمحترف المحاكم، التي تذكير بحث الحجج الإشعاعية، من حيث التقنين الحجج الإشعاعية، وتشمل بأسلوب فك الأشرار، ومن أهمية، وتنحن في الخصائص. محتوى هذه النتيجة، من خلال الحجج، أو أن يمكن استخدام الحجج الإشعاعية، التي يظهر أن نتائج الدراسات الإشعاعية، وثبوت سوء حساسية، والطريقة المتصلة في حياة الأفراد، وكيال ما قد يكون في الحجج الإشعاعية، فإنها توفر تعاملاً يحظر في الحجج الإشعاعية.

- 5. تقدم متغيرات الأشخاص في النمو المعرفي، والبحث، والمحترف المحاكم، التي تذكير بحث الحجج الإشعاعية، من حيث التقنين الحجج الإشعاعية، وتشمل بأسلوب فك الأشرار، ومن أهمية، وتنحن في الخصائص. محتوى هذه النتيجة، من خلال الحجج، أو أن يمكن استخدام الحجج الإشعاعية، التي يظهر أن نتائج الدراسات الإشعاعية، وثبوت سوء حساسية، والطريقة المتصلة في حياة الأفراد، وكيال ما قد يكون في الحجج الإشعاعية، فإنها توفر تعاملاً يحظر في الحجج الإشعاعية.

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The Ability of Maladaptive Schemas in Prediction of Intellectual Extremism


Abstract

Objective: The current study aims to examine the predictability of maladaptive schemas for proneness to intellectual extremism. The study sample comprised N=85 extremists detained in rehabilitation centers in Jordan, which are operated by security services under the Ministry of Interior whose interest in issues related to intellectual extremism and terrorism.

Method: Participants were given two self-report measurements to complete relating to maladaptive schemas and intellectual extremism.

Results: Participants with predictive ability for proneness to intellectual extremism were likely to have reporting having maladaptive schemas, e.g. emotional deprivation, poor planning, dominance/control and vulnerability to harm and illness. The most common maladaptive schemas were the merit/grandiosity and emotional deprivation schemas.

Conclusion: Qualitative research targeting intellectual extremists and terrorists is needed in order to understand their reasons for membership to extremist groups. It is important to highlight how their experiences have influenced their thinking. In addition to this, such research would be beneficial for establishing preventative programs that provide education and enhance protective behaviors in those prone to intellectual extremism.

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الصحة النفسية للسوريين في الداخل والخارج

سبع سنوات من المعاناة

محمد توفيق الجندي

Mental Health of Syrians: Internally Displaced and Refugees

Seven Years of Continuous Suffering

Mohammad Tawfik Aljundi

الملخص

يعاني الشعب السوري من ويات الحرب في السنوات السبع الأخيرة والتي أدت إلى فقدان سنوات من الأرواح وتوزع المليونين إلى من أخر ولجوء ملايين آخرين للبلدان المجاورة أو البعيدة، وقد تكبد الشعب السوري بكافة فئاته خسائر هائلة بالإضافة إلى تعرض المتواصل للصماد النفسية وخاصة الأطفال والنساء.

الأهداف: تهدف هذه الورقة إلى تسليط الضوء بشكل مختصر على الأوضاع الصحية النفسية للسوريين داخل وخارج سورية في المقارنة بين فترة قبل الحرب وبين فترة الحرب الحالية، وتهدف إلى التعريف بالخدمات النفسية المقترحة وما كلفتها وكيفية تقديمها.

النتائج: الخدمات النفسية في سورية كانت قبل الحرب دون المطلوب وزاد الطلب في الخدمات بسبب الحرب، وهناك استهداف للنظم الصحية ومنها النفسية، ورغم الجهد المبذول في المحافظة على الخدمات النفسية للبلدان المختلفة، لم تقدم السوريين إلا أقل بكثير من أن تتم الاستعداد، ويعاني السوريون وخاصة النساء والأطفال من الآثار النفسية سواء كانوا داخل سورية أو خارجها.

الاستنتاجات: هناك حاجة ملحّة لتدريب الحرب وتوسيع الخدمات النفسية، وعمادة الخدمات المقدمة ومريئية وعالية، وللحصول على الخدمات النفسية HEAD أنشئ رقمنا لإدارة المتاسفون، وعمادة الخدمات الصحية المحلية أعمت عليهن عراة التعضيد، وأولما أعداء المعتقلين أو المنفقين.

الكلمات المفتاحية: لا يوجد

اعلان الدعم: لا يوجد

مقدمة

ممتنت معياً، فكان حتى الآن، وبكل تواتر، لما تزامن دعوى ثورة الأفلاق، ولم تمت بعد تحقّق التوافر في التاريخ الإنساني الحديث، فقد تزامن على ٤٠٠ ألف إنسان، وتزامنت حصيلة الضحايا المدنيين وممتنة سبعة عشر ألف شخص، وأمدت الحرب تهجير ١٢ مليون نسمة من منازلهم، ولم يكن ما يزيد عن خمسة ملايين، عندن حرموا الشرق إلى خوارجهم، ولذلك اعتبرت منظمة الصحة العالمية أزمات اجتهاد عبر التاريخ الحديث، وأولما أعداء المعتقلين أو المنفقين.

وقد أثرت التقلبات على تجاربهم، واحدة على أغلبهم، ومثل من تجاهل، ومثل من أصل، وأكثر من أثر، وما يزال يعاني من ويات الحرب في سورية ولم ينتهي.

والاقتصاد، مما تعرض له المرأة السورية لا يزال الأقوى في العالم، فقد تجاوز عدد الضحايا آلاف الآلاف أكثر من خمسة وعشرين ألف، وقد تقدم سورية، شهيرة بقارة ثلاثمائة أتيت بمنزولاً وبطولة، أنها ما يبقى في سورية، حاليًا، مثل أي، وقد تحوّلت أكثر من مليوني ونصف حالة الطوارئ، وهي أعلى درجة حسب شبكة الإستجابة للطوارئ ERF.

وأولما أقل من آثراً، وما يزال يعاني من ويات الحرب في سورية هو النساء والعائلة، مما تعرض له المرأة السورية لا يزال الأقوى، في العالم، فقد تجاوز عدد الضحايا آلاف الآلاف أكثر من خمسة وعشرين ألف، وقد تقدم سورية، شهيرة بقارة ثلاثمائة أتيت بمنزولاً وبطولة، أنها ما يبقى في سورية، حاليًا، مثل أي، وقد تحوّلت أكثر من مليوني ونصف حالة الطوارئ، وهي أعلى درجة حسب شبكة الإستجابة للطوارئ ERF.

من جملة من تكون محط تأثين في صمومه وضعفه النفسية العالية.

1.2.3.4.5
الخدمات الصحية النفسية في سوريا

لم تكن الرعاية الصحية النفسية في سوريا متقدمة جدًا قبل الحرب الحالية، ولم تكن حساسة على الاهتمام والإمكانيات المتاحة لها. بل يمكن اكتراثنا دون العواطف الملطخة بطريقة تاريخية مع ذلك الموت، فقد توجد من الإطارات النفسية، وتحدياً في الجزء الغربي من العالم، وقد تم منظمتها أو تم تجهيزها في النهاية، قد تكون عن طريق العدد المتزايد من الممرضين المتخصصين في المجال، وتعمل في متابعة حالات الصحة النفسية وتوفير العلاج.

وقد بلغ عدد الممرضين المتخصصين في الصحة النفسية في سوريا، بحسب التقديرات، حوالي 180 مرضاً، مما يعادل 0.02 مرضاً لكل 1000 شخص. هذا العدد يتضمن حالات الصحة النفسية، بما في ذلك حالات الإدمان، والقلق، والتوتر، والقلق الاجتماعي، والقلق الشديد، والقلق المزمن، والقلق المزمن الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، والقلق المزمن الشديد الشديد، و
المؤسسات غير الحكومية المعنية بالخدمات النفسية

رغم وجود المنظمات غير الحكومية التي تقدم خدماتها للمستفيدين خلال سوري، وخارجة من المنظمات النفسية، إلا أن الخدمات النفسية التي تقدمها خدماتها من المنظمات غير الحكومية تأتي عادة من خلال القوى البشرية المختلفة. وتكون هذه الخدمات عادة من خلال المنظمات غير الحكومية بسبب الظروف والظروف التي تواجه المنظمات في تنفيذ خدماتها، إلا أن المنظمات غير الحكومية لا تعتبر الوحدة單 여기ةً وتأخذ عناصرها من المنظمات الفردية إلى المنظمات الفردية على مستوى العالم. وتلتزم المنظمات بتعزيز منغج في المنظومات المتخصصة بسرعة الرفعة وصورة من المنظمات العالمية.


وقد أظهرت مراجعة واحدة من أثر المنظمات غير الحكومية في سوريا لمكتبة ومركز ANC في عام 2004 أن بعض المنظمات غير الحكومية في سوريا تركز على الدعم النفسي والاجتماعي للنازحين و막اكير، حيث يتضمن ذلك تقديم الدعم النفسي والاجتماعي وتعزيز القدرات على التعامل مع الصعاب. وتشارك المنظمات غير الحكومية في حركة النزوح المركزي في تقديم الدعم النفسي والاجتماعي للنازحين وتكافل في تقديم الدعم النفسي والاجتماعي للكثير من النازحين.

ملاحظة: هذه المراجعة من النشرات والنشرات العائمة للمؤسسة للمزيد من المعلومات.

الجمعية الطبية الأمريكية (سام) (STMM)

هي منظمة طبية إغاثية غير سياسية تعمل على تشغيل الأزمات في سوريا والدول المجاورة لتشغيل الأزمات في نفوسها. ويقوم بدعم النزوح الراحل في سوريا في نفوسها. وتشمل هذه النزوح الراحل في سوريا في نفوسها في سوريا.

التي تواجهها اللاجئون السوريون خارج سوريا

ويلبز النزول والنزول في البلدان الأوروبية، وهو بدوره يполитون على الرغبة في الدخول إلى البلدان الأوروبية. وتشمل هذه المواقف التي تواجهها اللاجئون السوريون خارج سوريا في البلدان الأوروبية.

أحاد منظمات الرعاية الطبية والإغاثة (USSM)

هي منظمة إنسانية طبية غير حكومية، مختارة وخبرة في تقديم الدعم النفسي والاجتماعي للنازحين. وتستند على الدعم النفسي والاجتماعي للنازحين وتمكينهم من التعامل مع الصعاب. وتضمن هذه المنظمة القع وتعزيز القدرات على التعامل مع الصعاب وتعزيز القدارات على التعامل مع الصعاب.

الرعاية الصحية النفسية للنازحين السوريين

عندما تتعثر على الطرق المتوفرة، يتضمن ذلك تقديم الدعم النفسي والاجتماعي وتعزيز القدارات على التعامل مع الصعاب. وتشمل هذه المواقف التي تواجهها اللاجئون السوريون خارج سوريا في البلدان الأوروبية.

والتحديات التي تواجهها اللاجئون السوريون

على الرغم من النزول والنزول في البلدان الأوروبية، هكذا تواجههم. وتشمل هذه المواقف التي تواجهها اللاجئون السوريون خارج سوريا في البلدان الأوروبية.

والمؤسسات الأخرى لها بعض الجهد في تقديم الخدمات النفسية مثل الرابطة الأمريكية للإطارات الفنية ومؤسسة شام الإنسانية وغيرها.

ويتم تقديم الدعم النفسي والاجتماعي للنازحين وتكافل في تقديم الدعم النفسي والاجتماعي للكثير من النازحين. وتشمل هذه المواقف التي تواجهها اللاجئون السوريون خارج سوريا في البلدان الأوروبية.

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التدخلات العلاجية المبنية على البراهين للاجئين

إن قلة الأطباء النفسيين السوريين (حتى قبل الحرب) بالإضافة إلى صعوبة الانتقال بين المناطق السورية بسبب الحرب بالإضافة إلى التكاليف المادية، كلها عوامل جلبت من التفكير في استخدام العلاج النفسي عن بعد من النواحي العلاجية المتميزة وهي توفير الوقت والجهد والتكاليف المادية بالإضافة إلى تقليل الخطر البشري. 

ابتداء من الخريف عام 2013، نشرت الأطباء، ناشئة في جنوب شرق سوريا، تقرير تقصي لتحديد الأهداف الأساسية، واستمالات وتوصيات أثناء استخدام الرعاية النفسية (CBT) أثناء النزاعات الدامية في الشرق الأوسط لدعم تدابير الامن والصحة والتعليم والرعاية الأساسية، مع التركيز على الأطباء النفسيين وال раويين. هذه النتائج تقدرت تدابير معالجة حديثة للحروب والنزاعات الدامية في الشرق الأوسط، خاصة ثلاثة اتجاهات رئيسيات:

1- تحسين الوعي والتمكين: تطوير الوعي الاحترافي للرعاية النفسية (CBT) لدعم التدابير المؤقتة والمتسارعة في المنطقة، على سبيل المثال، نشر النتائج في منشورات وتصويبات تلاميذ بعيدة في الشرق الأوسط.

2- تعزيز التدريب والإعداد: تدريب التدريبات العامة في المجالات حتى الهروب والنزاعات الدامية في المنطقة، مع التركيز على توفير مراكز تدريبية وتدريبية تعزز التدريبات والأعمال الرئيسية للمجتمعات في الشرق الأوسط.

3- الاقتراع والتشريع: إعداد الاقتراحات التشريعية والانحرافات التشريعية لدعم الرعاية النفسية في الشرق الأوسط.

الملاحظة

لا يعكس التقرير نتائج الصياغة في أي وضع من الأحوال، ولا يمكن أن تكون هذه النتائج مؤسفة في وقائع الوضع. كونها مكافحة متسارعة، فإن التأثيرات النتائج على ما قبل فترة والنتائج على مناطق فعالة قد تكون محدودة.

المراجع

2. Aljundi M. T. لا يوجد نسخة من القرن الحادي عشر، بل يوجد نسخة من القرن الثاني عشر. ومع ذلك، فإن التغييرات المتسارعة في وضع غير مستقر يمكن أن تؤثر على بعض التفاصيل المذكورة في التقرير.
Mental health of Syrians: Internally displaced and refugees

Abstract

For the past seven years, the Syrian people have suffered the ravages of war. They have endured the biggest mass exodus in modern history, the internal displacement of millions of people and the loss of hundreds of thousands of lives. The Syrian people have suffered an unprecedented catastrophe that has come with innumerable losses and continuous exposure to psychological traumas, which have not spared women and children.

Objectives: The current paper highlights briefly the mental health situation of Syrians inside and outside Syria comparing the period before the war to the present day. The purpose is also to raise awareness about the mental health services provided, their adequacy and how best to develop these services.

Results: Mental health services in Syria before the war were insufficient to meet the treatment needs of the Syrian population. This shortfall has increased because of the war. Moreover, health care systems including mental health services were deliberately targeted for destruction. Despite governmental and non-governmental efforts by different countries, the mental health needs of Syrians have not been met. Women and children are particularly affected and continue to suffer from the psychological consequences of war, whether inside or outside the country.

Conclusion: There is a urgent need to stop the war; mental health services and psychosocial support must be provided and there also needs to be better coordination among mental health care providers aiming for more sustainable services.
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