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Mailing Address:

Dr. Walid Sarhan - The Chief Editor -The Arab Journal of Psychiatry
P.O. Box 541212 Postal Code 11937 Amman – Jordan
Tel: 00962 – 6 – 5335446 Fax: 00962 – 6 – 5349763
Email: wsarhan34@gmail.com
Journal Website: www.arabjpsychiat.com

Editorial Letter

Dear Colleagues,

It is hard to believe that 25 years have passed since the founding of the Arab Journal of Psychiatry. Creating the AJP was a challenging decision taken at the third Pan Arab Psychiatric Conference in Amman back in 1987. At the helm was Dr Adnan Takriti and I was his Deputy until his retirement as Chief Editor was announced in Khartoum four years ago. The Journal remains indebted to him for his vision and commitment. The first issue was celebrated in Sanaa with articles exploring attitudes towards mental health and outlining the role of psychiatry in primary health care. The impact of war and violent conflict on the psychosocial development of children was as topical then as it is today. Mandour and Hourani launched with their article titled 'Effects of the uprising (Intifada) on the psychosocial development of Palestinian children in the occupied territories' while in the current volume Thabet et al. report on the relationship between mothers' mental health and the prevalence of depression and anxiety in preschool children in Gaza. Both articles serve as poignant reminders that some things in life do not change.

Despite many challenges, the AJP continues to provide an outlet for mental health research in the Middle East and North Africa. In fact, it is a rare example of a publication that relies solely on individuals from public and private practice rather than an institution to run it.

So, how will the AJP look in another 25 years? I believe the answer depends upon the outlook of you – the reader. And dear reader, please reflect carefully on this question alongside one very important fact: only a handful of people keep this journal going. The tradition of the AJP has been a noble one. Those who guided its destiny have been the leaders of mental health for the Middle East and North Africa. The upcoming Pan Arab conference in Lebanon should be a chance to recharge the battery of the AJP from both a scientific and administrative perspective. I would like to take this opportunity to call on all of you – reader and contributor alike – who over many years have benefitted from the research published in the Arab Journal of Psychiatry - to offer your support as we continue our stewardship of mental health in the Arab world.

My best wishes,

Walid Sarhan

May 2014

Table of Contents

Editorial

- **Psychiatric Impact of Wars and Terrorism on Muslim Women**
Unaiza Niaz1

Psychometry

- **The Arabic Diagnostic Interview for Genetic Studies: a DIGS: Psychometric properties**
Elie G. Karam, Ziad Kronfol, Mariana Salamoun, Lynn Farah, Marie Therese Nacouzi, Stephanie Loukieh, Yasmeen M Assad, Grace Aranki, Melvin G McInnis 18
- **Which is the Optimal Depression Rating Scale to Identify DSM-IV Depression in Schizophrenia? A Diagnostic Validity Comparison of Five Mood Scales**
Twana Abdulrahman Rahim, Zeraq Masud Al-Salihi, Mahmood Qasim Mahmood, Asma Subhi Muhyaldin, Alex J Mitchell24
- **The Experience and Severity of Premenstrual Syndrome among a Saudi Sample using a newly Developed Arabic language Scale**
Haifa Mohammad Algahtani, Haitham Ali Jahrami33

Mental health of physicians

- **Depression and Burnout among Residents**
Khalid Abdul-Moez Mohammed, Essam Gaber Ali, Ismail Mohammed Youssef, Magda Taha Fahmy, Wafaa El-lethy Haggag40
- **Evaluating the Effect of an Educational Program on Level of professional Burnout among Family Physicians in Faculty of Medicine - Suez Canal University**
Amany Ali Kotb, Khalid Abd-Elmoez Mohamed, Mohammed Hany Kamel, Mosleh Abdul Rahman Ismail, Abdulmajeed Ahmed Abdulmajeed52

Mental health in Gaza strip

- **The relationship between mothers' mental health and the prevalence of depression and anxiety of preschool children after the war on Gaza Strip**
Abdel Aziz Mousa Thabet, Abu-Khusah, Ashraf Ahmad , Panos Vostanis61
- **Trauma, PTSD, Anxiety, and coping strategies among Palestinians adolescents exposed to War on Gaza**
Abdelaziz Thabet, Omar EL-Buhaisi, Panos Vostanis71

Liaison psychiatry

- **Somatization among Compensated Hepatitis C Virus Patients**
Khaled Abd Elmoez, Mohamed Amin, Wafaa Ellithy, Yossri Ashour83

Psychiatric Impact of Wars and Terrorism on Muslim Women

Unaiza Niaz

الأثار النفسية للحروب والأرهاب على المرأة المسلمة

عنيزه نياز

Abstract

The Muslim women's mental health in wars and terrorism is hardly known to the world at large. Few significant research studies have been published in scientific journals. Until two decades ago, the impact of war and other atrocities on women were hardly reported. The Gulf Wars and Afghanistan invasions, drone attacks in the Pakistan Tribal belt, general suicide attacks in the main cities of Pakistan and the Syrian war refugees have been highlighted by the media, particularly after the 9/11 War on Terror. Active participation of UN Agencies, human rights organizations, the individual bloggers on internet, particularly Twitter have played a vital role in sensitizing the global world about the plight of Muslim women in conflict areas. Awareness of gender based violence (GBV) and sexual exploitation of refugee women, especially in Bosnia, Iraq, Afghanistan and now Syria has been raised by women in mental health professions, the media and their professional organizations have taken cognizance of these brutalities. Attempts have been made support the women victims of psycho trauma. The victims of violence (bomb blasts, terrorist attacks and genocide) need urgent psycho social support, rehabilitation services, counseling and treatment, to prevent long term consequences and permanent disabilities. Thereby increasing the global burden of mental health issues, with phenomenal financial burdens on war affected countries and escalate the global mental health problems. The safety, dignity and both mental and physical health of human beings are clearly not being managed adequately by the WHO, United Nations Relief Agencies and the Human Rights Organizations particularly without any discrimination. This article highlights the experiences and perspectives of Muslim women - their thoughts and nightmares and their daily struggles - in an age of war, insurgency and terrorism Firsthand experiences of war and deadly political oppression on Muslim women It is our moral and professional duty to unite efforts as psychiatrists to bring this pertinent tragic issue to the forefront and suggest ways to prevent, treat and rehabilitate the silent sufferers of wars and terrorism.

Keywords: Muslim women, psycho trauma, sexual exploitation, wars

Declaration of interest: none

Introduction

War, insurgency and terrorist attacks are perhaps the greatest atrocities suffered in the world today. Post-war events can lead to similar or even worse suffering in countries already burdened by trauma. Problems of adjustment faced by communities following war are complicated by the incidence of mental illness among its members. Many suffer mental illness on the fringes of society where indigenous systems of care have been rendered defunct as a consequence of violence and destruction with international humanitarian agencies often providing limited service.

There are more than 57 Muslim countries in the world with a large number engaged in war and armed conflict, e.g. Iraq, Iran, Afghanistan, Palestine, Sudan, Darfur, Pakistan, Lebanon, and Syria. More than half a billion women in the world are Muslim concentrated in approximately 45 Muslim-majority countries, in a broad belt from Senegal to the Philippines, with the largest number in the South Asian subcontinent. The seventh

edition of the Global Peace Index (GPI)¹ shows a 5% deterioration in the world's peacefulness over a six-year period. The least peaceful regions in the world are Muslim countries - Afghanistan, Somalia, Syria, Iraq, Sudan and Pakistan.

More than 145 conflicts amounting to wars have occurred since World War II and the vast majority have taken place in developing countries. A number of authors have written on the psychological aspects^{2,3,4,5,6} "Psychological impacts are the defining hallmark of terrorism and are increasingly recognized as prominent attributes of all disasters".

It is well-documented that conflicts have a different impact on men, women, children and the elderly. In recent decades, the battleground for modern confrontation and conflict lies within civilian domains rather than on distinct battlefields. Violence against women is used to shatter and disgrace women, men, families, communities. Women have become the worst victims of war – and the biggest stakeholders of peace.^{7,8}

Therefore, in most conflicts, there are interactions between the direct effects of warlike and terrorist actions on local environments with ensuing hazardous situations for the health, assets and social welfare of indigenous populations, which consequently precipitate into much greater devastation or calamity.⁹ Resident and displaced populations, refugees, and famine-affected peoples are simultaneously caught up in conflict.^{10,11,12}

Currently, an estimated nine out of 10 war casualties are believed to be civilians.¹³ The World Health Organization (WHO) estimated that 310,000 people died as the result of war in the year 2000.¹⁴

Women in wars and conflicts

Huge differences in the health of mothers and children exist between the poor countries undergoing conflict and the predominantly rich countries exporting arms to them.¹⁵ Women are more susceptible to the mental health consequences of war and are more likely to face threats of community violence outside the home.¹⁶

At the core of the current issues on women's mental health and human rights, the view is that the role of health professionals in disasters (particularly wars, genocide, and violent conflicts) should be that of honorable, righteous agents and they must take action towards what is ethically and professionally right.¹⁷ "Overall, a total of 72 million people are believed to have lost their lives during the 20th Century due to conflict, with an additional 52 million lives lost through genocides."²⁰

First World Report on Violence and Health World Health Organization, states: WHO (2002)²¹ the intense violence that women suffer during conflict does not arise exclusively due the conditions of war; it is directly related to the violence that exists in women's lives also during peacetime. Throughout the world, women experience violence because they are women, and often because they do not have the same rights or autonomy that men do. They are subjected to gender-based persecution, discrimination and oppression, including sexual violence and slavery. The United Nations Declaration on the Elimination of Violence Against Women defines this violence as "any act of gender-based violence that results in, or is likely to result in physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private."²² No woman is exempt from violence and exploitation.²³

During conflict women and girls are attacked since they are related to political adversaries, as they are political

leaders themselves, or simply for the reason that they were at home when the soldiers arrived. Also women and girls experience violence at the hands of many others besides armed groups. Women are physically and economically forced or left with little choice but to become sex workers or to exchange sex for food, shelter, safe passage or other needs. Their bodies become part of a barter system, a form of substitute for money that buys the necessities of life. Government officials, aid workers, civilian authorities and their own families have all been party in using women in this immoral way.

While the arrival of peacekeeping personnel has the advantage of providing the local population with an increased sense of security, it may also have some negative repercussions. Prostitution, especially child prostitution, may increase with the influx of relatively well-off personnel in situations where local economies have been devastated and women do not have options for employment.²⁴

In 1998, a study aimed to identify a) the needs of women in wars b) to examine the international law, to examine the international laws, mainly the laws pertaining to the humanitarian laws and c) to the lesser extent laws of human rights were evaluated, in order to review the extent to which these laws provided protection for women. The idea was to implement an overall ICRC's operational response to the needs of women affected by armed conflict. The 1998 study raised awareness that ICRC could do a lot to curb sexual violence by more specific dissemination among arms bearers on the prohibition of all forms of sexual violence and alert those in a position to put an end to such grave violations.

The ICRC was very much alarmed regarding the type, magnitude, and extent of the violations committed against women in armed conflicts worldwide. In order to assess their needs, the ICRC pledged in 1999 to endorse respect for women, especially targeted by sexual violence committed against them. Several women have related through their personal experiences, as to how war adversely affected their lives Although men, women and children all are victimized as a result of genocide, but women suffer further as a result of sexual exploitation, torture, and losing lives due to their ethnic background.

Objectives

The current article has three objectives:

1. Provide an overview of the psychiatric impact of wars and terrorism on women in the Muslim world.
2. Highlight the invisible sufferings of Muslim women.

3. Stress the importance of inherent cultural and religious strengths and sensitivity and rather unique psychosocial circumstances and support system available within Muslim societies.

Methodology

The current article does not address the situation for women in all Muslim countries as the subject is vast and encompasses different fields of social sciences and human rights.²⁶ References on the subject, mentioned in the current review have included most of the salient, references from the well-known psychiatric journals. References also included reports and articles from the WHO, Global _ Peace _ Index _ Report AGREED, the Federal Research Division, Library of Congress 2005, Statistics on Violent Conflict, Medscape Public Health and Prevention, Declaration on the Elimination of Violence against Women UN General Assembly, Reports of United Nations Development Fund for Women, Secretary-General's Bulletin on policies to achieve gender equality in the United Nations, UNTAET report to DPKO on the Implementation of Security Council Resolution. Copenhagen: International Rehabilitation Council for Torture Victims, Women's International League for Peace and Freedom, United Nations Development Fund for Women, the International Committee of the Red Cross, UN High Commissioner for Refugees (UNHCR), Oral Update of the Independent International Commission of Inquiry on Syria, The Christian Science Monitor, United Nations Population Fund (UNFPA), Foreign Policy Report of the U.S. Centers for Disease Control and Prevention, Jammu and Kashmir Coalition of Civil Society, Historical documents of Kashmir, and Kashmir Watch.

Mental health consequences of war for Muslim women

A WHO report (2001) "Mental Health: New Understanding, New Hope" estimated that 10% of those who have experienced traumatic events associated with war and armed conflict will have mental health problems, such as depression, anxiety and psychosomatic difficulties. Children, the elderly, and women are among the more socially or economically vulnerable.

A large number of women in wars may end up having to bear the burden of becoming the primary caregivers of their family. Added responsibilities on women often overload their capability to cope; as their concern with the needs of the family may lead to their inability to address their own personal needs, especially if they become widows. Their means of supporting the family

may also be limited and prostitution may become a necessary option.²⁷

On the other hand, the care-giving role may have a protective function providing women with an identity and a natural accepted role in society. Psycho-social distress in women is commonly expressed through somatic complaints. Women generally have little understanding of the psychological nature of such symptoms. Lack of knowledge about psychotherapy and the stigma of psychiatric illnesses are probable factors for why there may be resistance to express psychological distress fears and worries. Another reason for women to somatize their psychological illnesses (especially depression and anxiety) is that their families may view treatment for psychological problems as non-legitimate or unnecessary.¹¹

Many women refugees or those women who live in war zones are frequently subject to severe social constraints as they are expected to follow traditional patterns. They may only feel comfortable by showing loyalty to old customs, which are not necessarily appropriate to their altered current situation and wishes.²⁸

Women's health situations are commonly characterized by a multiplicity of problems caused by a combination of traumatic past and current stressors. Women are often forced to face restrictions in their personal mobility and efforts to adapt to new roles thus further adding to their disadvantage and marginalization.¹¹ Society has an obligation to develop services that offer culture and gender sensitive care and observe women's basic human rights.²⁹

Rape, sexual torture and exploitation during war

The unique hazard for women during war is the trauma inflicted by men in the form of assault, rape and torture to demean them in order to exercise their power. Some examples of this form of power over women include military brothels, rape camps, prostitution, and the ever growing menace of trafficking. The culture of war fosters such torture and expression of male aggression. Further, social and economic damage in the wake of war is predominately devastating for women and children. Rape is a weapon of war that infuses terror, humiliates and silences women and their families. It may result in the development of social outcasts since raped women in most Muslim societies are marginalized. In addition, life in exile may be full of threats and hazards because personal security is not guaranteed; indeed, women risk sexual exploitation in different ways in detention camps and refugee camps.

Sexually violated women experience fear, betrayal, guilt, and feelings of humiliation, which often prevents them from reporting sexual violence. It is important to examine the noticeable symptoms keeping in mind that such behavior may represent pathology attached to the traumatic experiences themselves or be situation-specific responses to current stresses, or represent lack of personal control in the new settings. If perceptively explored, most of the sexually traumatized women will often be diagnosed with PTSD.

Reactions to psychological and sexual trauma are universal. Nonetheless, the severity and cultural interpretations of symptoms and the coping strategies may vary from culture to culture.³⁰ It is vital to note that rape and sexual exploitation in war was not documented systematically until the recent investigations of genocidal rape of Muslim women during the conflict in the former Yugoslavia. These atrocities were considered and documented as war crimes for the first time although historically such war atrocities and crimes against local women have always been present, accepted and in the knowledge of senior military officers.³⁰

Death and injury by landmines

Women and children are common casualties in agricultural and subsistence-farming societies where landmines are intentionally placed in agricultural fields and all along the way to water sources and markets. The intention behind this form of mining is to starve a people by killing its farmers. More than 100 million antipersonnel landmines and unexploded weapons lie dispersed and unmarked in fields, pasturelands, and near borders in 90 countries throughout the world. Approximately 15,000 to 20,000 people are maimed or killed each year by landmines and more than 70 per cent of the reported victims are civilians. This is a common occurrence in the Syrian Golan Heights, Afghanistan, Palestinian Territories, Occupied Jammu and Kashmir and the tribal areas of Pakistan.^{31,32} In many parts of Africa, women farmers are responsible for almost 80 per cent of the food produced. When injured, they lose the ability to farm and to feed their family. Often, their husbands abandon them leaving them to beg on the streets or be sexually exploited. As recovery from war continues, it is likely that an even greater percentage of those injured and killed by landmines will be women and children when they begin their return to peacetime sustenance activities: collecting firewood and water, taking care of animals and farming.

War widows

Countless women and girls all over the world suffer the trauma of war - as widows or orphans, as displaced from their homes and sometimes detained. For the most part they are civilians caught in the crossfire and show astonishing resourcefulness and resilience for coping with the disintegration of their families, the loss of their home and their belongings and the destruction of their lives. Many young widows raising children in poverty have had to turn to prostitution as a survival strategy. In Bangladesh, a large number of girls were trafficked to Indian brothels, particularly vulnerable young daughters of widows who were taken out of the schools to assist their mothers.¹⁵

In the war-torn countries of Bosnia and Herzegovina, Kosovo, Mozambique, and Somalia, a very large number of women are widows. Most of these are war widows who live in isolation and abandonment in refugee camps lacking the support of a male relative to help rebuild their homes. In Kosovo, where an estimated 10,000 men died or disappeared, many widows who returned from refugee camps had no social support systems nor were there any advocacy organizations to provide assistance with the result that they became destitute and socially marginalized.³³

United Nations studies reveal that the household census in developing countries fails to document the inequality and poverty of widows within intergenerational households and completely overlooks the homeless. There is no official count or identification of widows who have survived political and individual crises, and hence are least likely to receive care from emergency services. 'The poorest are widows,' concludes the UN.¹⁵ Many war widows became sole wage earners often going hungry to feed their children; possibly 60% suffered from psychological problems with physical manifestations, such as weight loss and difficulty breast-feeding.

Conflict in the Middle East: Impact on women's mental health

For over six decades the Middle East has been in a situation of overt inter-nation armed conflicts as well as long-term low intensity conflicts. Every day the media bring the horrors of ongoing violence in Iraq, Palestine, Israel and Lebanon. In 1975, Lebanon became the site of a civil war and two Israeli invasions. The war that raged for 16 years produced many Lebanese widows, orphans, migrants, refugees, and displaced persons in their own country. As the Lebanese conflict went on, women became active participants in the war experience. Furthermore, Lebanese women who suffered for years

from war-induced physical and mental health problems did not receive appropriate medical care.

Review of several war studies is vital to assess the mental health of Lebanese women during the war. There were several mediating factors in the development of depression in women exposed to war in Lebanon;³⁴ for example, the areas in the south of Lebanon were under occupation until the year 2000. Events associated with the occupation have affected the psychological and physical health of the population. In a study to investigate the prevalence of PTSD, general psychiatric morbidity and depression among residents in the formerly occupied region females were six times more likely to have PTSD than males. Also depression and PTSD followed the same pattern and were significantly correlated. This reflects the high prevalence of PTSD and the co-morbidity associated with it. The extent of exposure to traumatic events was a positive predictor both for PTSD as well as general psychiatric morbidity in Lebanese women. Some socio-economic and life-style factors were also able to partly predict PTSD.^{35 36,37}

The quality of life of the Iraqi mother “Community Study in Mosul /Iraq”

Since 1980, Iraq has passed through three wars and 13 years of severe economic sanction which stamped its burden on the family and the mother in particular. The mother was regarded as the key person or the principle caregiver in the family as most men were at that time in military services. This was the situation up to 9th April 2003, which marked the start of foreign occupation in Iraq. Since then, economic sanction become worse added to the steep economic drift in the income of the mother to cope with this bad quality of life. Working mothers or house wives face almost the same efforts to secure her normal minimal needs of the families securing healthy maternal, physical wellbeing, relationship with others, social, community and personal needs.^{38 39}

An ICRC article “Women in Iraq: Like being inside a big prison”⁴⁰ describes the plight of women in Iraq. The ICRC’s growing concern about the increasing reports of murders, rapes and kidnappings as well as general intimidation and oppression of women. Internal conflicts come out of the very womb of society. They are often a consequence of a loss of general security and from external interventions Women bear the brunt of the burden of displacement having to maintain a delicate balance between the risks they run in frequently hostile environments and the crucial need to provide for the immediate requirements of the family. The Iraqi woman has managed to stand the test of history; in particular, by

helping others reclaim their humanity and self-confidence. Iraqi women can still provide some economic and cultural assistance whenever possible and can also contribute to spreading religious values in the right way.

Syria tops world list for forcibly displaced after three years of conflict

A survey by the UNHCR and International Relief and Development⁴¹ found progressively more difficult conditions among the hundreds of thousands of Syrians displaced to camps in Jordan. The study identified harsh living conditions among both Syrian urban and other non-camp refugees with 50% of refugee dwellings inadequate and hundreds of thousands struggling to pay rent. The day-to-day struggle for survival for some of the 450,000 registered Syrian refugees as they face rising rents, inadequate housing and educational challenges for their children is a miracle. Almost four-in-every-five Syrians displaced to Jordan live outside formal camps. As their resources dwindle, many are turning to “negative coping mechanisms” to make ends meet sometimes placing themselves at risk of exploitation.

Three years after the onset of the conflict, Syria has become the world's leading country of forced displacement with more than nine million people uprooted from their homes. Presently, 2.5 million Syrians have registered as refugees in neighboring countries or are awaiting registration. With displacement inside Syria having reached more than 6.5 million, the number of people in flight internally and externally exceeds 40% of Syria's pre-conflict population. At least half of the displaced are children.

In the absence of visible development towards a political solution, UNHCR envisages that the refugee population in the surrounding region will grow to become the largest refugee population in the world. In Lebanon alone, the number of registered refugees from Syria is approaching 1 million and could grow to 1.6 million at the end of 2014 if existing trends continue. Jordan is also shouldering the burden, estimating the related cost at more than US\$1.7 billion so far. The surge in demand for healthcare has led to a shortage of medicines. In northern Jordan there is a growing shortage of drinking water for Jordanians and displaced Syrians.

Syrian parents report feeling desperately worried about their children who have experienced horrors and are showing signs of psychological distress. In 2012, roughly 7% of mental health patients had symptoms of severe mental disorders, according to Médecins Sans Frontières This year, that number has risen to 15%. “Everything here is psychological trauma,” says a surgeon. A reality

substantiating women's heightened risk of exposure to traumatic experiences and PTSD producing events such as sexual violence, human trafficking and prostitution is reflected in the current Syrian conflict. Many suffer from depression, anxiety and PTSD, having lost their homes to bombing or having witnessed terrible events. Others are previously diagnosed psychiatric patients who have been unable to access medication or treatment during the crisis.

The International Federation for Human Rights (FIDH), in collaboration with the Arab Women Organization (AWO),⁴² sent an international fact-finding mission to meet with Syrian women displaced to Jordan in December 2012. The mission aimed to strengthen documentation and awareness of crimes targeting women in the ongoing conflict in Syria. It remains extremely difficult to measure the extent of crimes of sexual violence or to draw conclusions on patterns, in particular, due to the stigma surrounding such crimes. However, a majority of interviewees reported having witnessed or heard about cases of sexual violence and said that the fear of being raped had motivated their decision to flee the country. Several of the women interviewed gave indirect accounts of rape and other forms of sexual violence committed by pro-government forces during house searches, following arrest at checkpoints and in detention. There were also accounts of such crimes having been committed by anti-government armed groups many of those interviewed also spoke of the risk of women being abducted.

According to several women and organizations providing support services, survivors of rape are sometimes forced into marriage, in order to "save family honor." Risks of stigmatization and rejection of survivors impose a culture of silence, preventing women reporting crimes of sexual violence. As a result, the vast majority of those in need of medical and psychosocial support do not have access to such services.

According to the International Rescue Committee (IRC), assessments conducted in Lebanon and Jordan in 2012 suggest "one of the reasons that families from Homs, Damascus, Dara'a, and Idlib governorates fled were because of a perceived risk of kidnapping and rape."

According to the International Commission of Inquiry on Syria in March 2013, "Indirect accounts suggest that women who have been held for any period of time at checkpoints or in intelligence agencies may have suffered rape or other sexual assault."^{43,44}

Syrian refugees need psychosocial and mental health care for themselves, their children, and other severely distressed family members. Their stories are heart-

breaking. Parents report feeling desperately worried about their children, who are wetting the bed, covering their ears and crying when airplanes pass overhead, clinging to their parents, and unable to concentrate at school.

Occupied Palestinian Territories

Palestinians continue to find themselves totally dispossessed and forcibly made to change their normal path of independence, progress and prosperity. Loss of possessions, especially one's land, carries psychological significance in Arab culture. It is equated with loss of honor.

The second mass trauma the Palestinians were subjected to was in 1967 when the rest of historical Palestine was occupied by Israel (West Bank, East Jerusalem and Gaza). In essence, the traumatized Palestinian children of today are burdened with the cumulative trauma bequeathed to them by their two ancestral generations.

So much has been written on Palestine by various local and international social scientists, psychiatrists and journalists, particularly by the distinct and active Gaza Community Mental Health group (GCMHP). More than six decades of war, torture airstrikes and frequent bombings of civilian populations have played havoc unparalleled in the history of this century. The systematic policy of psychological warfare against the Palestinian people and the methodical humiliation and demoralization which targets the Palestinian people's psyche, emotionally and cognitively, has played havoc on the long suffering Palestinians. In community psychiatry there are three main factors that constitute the highest stressors, which affect people psychologically: a) Lack of social support system. b) There are limited social relations as people are confined to their homes: every town and village is cut off from the other and completely isolated. There is disintegration of family and social relationships, and c) Unemployment and poverty.

For Palestinians, the increase in life threatening situations and the fear of losing one's life have caused grief and trauma and have affected all sectors of the community. It is understood that 25% of any community directly living in a conflict area or war zone is affected psychologically on a long-term basis. It is estimated that the number in the Occupied Palestinian Territories has reached 30-35% that will be affected on a long-term basis.⁴⁵

It is widely known that bombing and shelling is more traumatizing than other measures of force because these methods of warfare are more sporadic and constitute a drastic threat to people's sense of existence and security.

For Palestinians, the lack of control over one's environment is a main cause of psychological difficulty.⁴⁶ A majority of studies of psychosocial consequences of persistent violence and brutal occupation of Palestine are about the general population. The misery and horrors of psycho trauma experienced by children and adolescents is particularly reported, but there research on women's psychiatric issues separately is limited. Undoubtedly the Palestinian Arab woman is the backbone of strength and resilience in Palestine, West Bank and Gaza There are some significant studies on torture and desperation, apathy and frequent rages of the inhabitants of the Refugee Camps. The author visited Gaza in 2011 and observed that the Gaza women were focused in their jobs, determined to support their families and had a resolute strength and resilience, not so commonly seen in other countries. They were devout believers and their faith in the religion appeared to be their major strength for survival.⁴⁷

According to the GCMHP, those most affected were people of middle-age. The most common cases were from Gaza city and the southern area due to presence of the large population in camps. It has been observed that persons in Eastern culture react to stressful events by exhibiting somatoform symptoms, including conversion fits, motor, sensory, and dissociation states. Another study reported the psychological distress and well-being among traumatized Palestinian women during the Intifada was published in 1998 this study investigated the extent to which differences in the presence of trauma, political and normative stressors, family resources, family coping, and family hardness could account for variation in women's psychological distress and well-being.⁴⁸

The primary sample included 310 women who were affected by political oppression during the Intifada. Results indicated that negative life events were more predictive of psychological distress and well-being than was the presence of a trauma or political stressors and normative stressors were shown to have albeit different effects on the mental health status of both traumatized and non-traumatized women. Consistent with previous findings^{49, 50, 51} the cumulative life changes had a major impact on the well-being of traumatized women, but not for the non-traumatized. As the author consider, it could be that the presence of the trauma engenders stress and as a result women become unable to manage the hardships and difficulties of transitions and crises, with respect to non-traumatized women, concerns about political stressors were associated with high psychological distress.

Previous reports about Palestinian women⁵² indicated that women strongly exposed to hardships of military occupation tended to employ more social and political activity and less inactive and accommodative coping modes than did less traumatizes women.

According to Diab, a vast majority of the Palestinian populations were suffering from symptoms of psychiatric disorders. He pointed out that the clients of GCMHP's Community Centers suffered from various psychological problems, including panic, feelings of insecurity, easily provoked aggressiveness, anger, psychosomatic disorders, depression, frustration, low morale, fear, poor concentration, lack of belonging or affiliation, lack of confidence in self and others, emotional numbness, and PTSD symptoms. Obsessive-Compulsive Disorders were also fairly common, and there was a definite rise in illness relapse rates.

El Sarraj pointed to the significance of highlighting such statistics and showing the direct impacts of the siege on the citizens.⁵³ He stressed on the importance of the accuracy and avoiding exaggeration in stating any statistics. El Sarraj focused on the 'victim psychology' stating 'since we, as Palestinians, shouldn't adopt the role of victim, and exaggerate in blaming others and defaming ourselves. Our priority should be national reconciliation and unity and supporting the Palestinian resiliency so as to achieve our legitimate rights, endorsed by international conventions'.

The physical and mental health needs of the Gaza people are extremely challenging to address, particularly the psychological and emotional crises. During the Israeli military strikes from December 2008 to January 2009 approximately 1380 Palestinians were killed, at least 5380 people were injured, including 1872 children and 800 women.⁵⁴ In these improvised settings within health facilities maternity wards and operating theatres were transformed into trauma units. The consequences must be drastic in terms of maternal and child morbidity and mortality because 3500 deliveries were expected to have taken place during the twenty-three days of military operations. Findings from a recent UNFPA assessment indicate that during that period there was an increased number of miscarriages in pregnant women and an increased neonatal mortality in Shifa Hospital in Gaza City.⁵⁵

According to the World Health Organization (WHO), only the rough estimates show that during the last Gaza crisis 25,000 to 50,000 people reported having experienced severe mental stress and required some form of psychological intervention to address the long-term effect. The restoration of normal socioeconomic

conditions, secure living conditions and adequate psycho-social support services are undoubtedly needed to restore peace and tranquility to the lives of Gaza Palestinians.⁵⁶

According to, 'The Impact of Armed Conflict on Palestinian Women' a number of men who were detained by Israelis used the same interrogation tactics against their wives and family members that had been used on them in prisons. Since the second Intifada began, Israeli restrictions on movement have led to unemployment and overcrowded living conditions have been a consequence of homes having been bulldozed; these factors may have contributed to increased levels of domestic violence, incest, rape and suicide, according to one study⁵⁷ in the Bureij refugee camp and surrounding areas through a project titled Bureij Women is Health Center. The project uses a woman-to-woman rights-based approach to reproductive health care. Services related to gender based violence (GBV) are integrated within the Associations' services. Staff have received training to assess clients for GBV as well as addressing the range of physical and psychological needs that a survivor might have, including referrals for specialized care.

Collaborative fight against domestic violence in Bosnia-Herzegovina

In post-war Bosnia-Herzegovina, large-scale, collaborative work to address overall gender equality and women's rights is underway. Gender centers tasked with working on equality have been established at the state and municipal level. In November 2005, the Coordination Body created a protocol against domestic violence that was signed between various government ministries, canton governments, and NGOs. The protocol has led to the creation of a database to track domestic violence cases and a draft five-year Action Plan against domestic violence in Canton Sarajevo. Literature reviews pertaining to mass rape during times of war are still not conclusive enough to identify and explain the unique factors that promoted it. The former Yugoslavia, particularly Bosnia-Herzegovina, serves as a case-study against which the literature is reviewed. The authors conclude that women's experience of rape in war, like the abuse of women's human rights, is often determined by the intersection of a variety of factors, such as age, race, class, religion, ethnicity, and nationality. Future studies should further explore how these complex variables relate to each other in an attempt to understand the horrific crimes that are often perpetrated against women during wartime.⁵⁸

Focus on Afghanistan: A center stage for war on terror

Almost 25 years of war in Afghanistan can be divided into four distinct phases: the 1979 invasion of the country by the Soviet Union and the decade of war that followed until the Soviet departure in February 1989; three years of armed conflict between the Mujahedeen (resistance fighters) and the Soviet supported Communist government until its collapse in April 1992; two years of civil war between Afghan factions; and five years of fighting still ongoing between the Northern Coalition and the Taliban. All together, these conflicts have killed an estimated 1.7 million people, permanently disabled another 2 million and driven more than 5 million from their homes.⁵⁹ Collective communal psychological wounds – are called "social suffering" by a medical anthropologist Arthur Kleinman.⁶⁰ This psychological suffering permeates the lives of survivors scraping by in unimaginable poverty in the midst of a collapsed infrastructure, the common consequence of modern combat. According to the Centers for Disease Control and Prevention, 30% to 70% of people who have lived in war zones report symptoms associated with PTSD and depression.

In 2002, shortly after the Taliban government fell in Kabul, the U.S. Centers for Disease Control and Prevention dispatched a research team to Afghanistan to study the prevalence of mental trauma among civilians there.⁶³ The survey remains the only modern, comprehensive inquiry into the mental health of Afghans. It found that 42% of Afghans suffered from PTSD and 68% exhibited signs of major depression. In other words, up to 19 million of the country's 28 million people were suffering from psychological injuries. And that was a full decade of war ago. Much of Afghanistan is too unsafe for mental-health-care professionals to operate effectively. In the entire country there are only 200 beds for mental-health patients.

The unpredictable nature of suicide bombs and other improvised explosive devices are a relatively new feature of the war, which have clearly added to the anxiety about the current conflict. In urban areas, the risk of suicide attacks and remote controlled bombs remains high. Women and children face anxiety over the risk of abduction, suicide attacks and the remote control bombs that were laid in bazaars. People were more likely to express fear or anxiety about the conflict spreading or frustration with the government, poverty and lack of employment opportunities.

Family violence is one of the most tiring and most painful problems for women in Afghanistan and most

other Muslim countries. At the same time, it is also a fact that Afghanistan is a country where male prejudice against women is high and where it seems women are regarded as housekeepers and child producing machines. While such views have no religious basis a religious basis, it appears a religious basis has been created for them.

Abuses in the name of Islam, particularly in the past six years, have played a role in making women realize that they are not solely born to serve men and without them the society would not move ahead. A small number of enlightened Afghan women have gained a different understanding of the use of the veil as sacred rather than as a symbol of enslavement to their husbands, which is how it is depicted by fundamentalists. Most of the organizations supporting women's basic human rights, lack programs on women's issues or on the struggle for their liberation either for the reason that the ban on women to be treated by male doctors or because of the restriction on women's movement without being accompanied by a close male family member or due to the indifference by their male family members. Consequently, such deprivations have led to a large number of women's premature deaths or led them to live the lives of invalids. The psychological effects of these deprivations on women are compounded by their debilitating states. The number of suicides has increased among women in the past six years; but female suicides in the past were also not unfamiliar.

The majority of women are extremely reluctant to talk about personal experiences of sexual violence, mainly due to the taboos and stigma linked with such topics in the Afghan society. Nevertheless, few women have disputed that sexual violence related to conflict have occurred. Women frequently stated that sexual violence happened in their community and men frequently noted instances when women were raped or "dishonored," particularly during the civil war period.

The study, published in the Journal of the American Medical Association (2007) "Feelings of hatred and revenge, and the desire of acting on that feeling of revenge, directly affects the peacemaking process," says Barbara Lopes Cardozo, a psychiatrist who oversaw the 2002 mental-health survey in Afghanistan and who has studied mental health of civilians in such war-scarred geographies as Kosovo, Somalia, and Uganda. "We found very high numbers for having those feelings of hatred and revenge - almost 80% - in Afghanistan." PTSD can give rise to domestic violence. The U.S. Department of Veterans Affairs reports returning service

members are up to three times more likely to abuse their partners than American civilians. Afghanistan is no exception: two-thirds of Afghan children surveyed by British anthropologists in 2006 reported traumatic experiences; two years later, a study in the Journal of Marital and Family Therapy reported more than half the children surveyed in Kabul said that they had witnessed three or more types of domestic violence. The study concluded that this knowledge has adversely affected the children in Afghanistan's villages and towns, but how does one help heal a country that has been forged in millennia of almost incessant conflict? There is no such thing as a Marshall Plan for the mind. Most mental-health professionals agree that war injures the psyche, but not everybody thinks that the diagnosis of PTSD, formally recognized by the American Psychiatric Association in 1980, can be applied to people from non-Western cultures where perceptions and experiences of grief and shock may be expressed differently.

A study taking the narratives to create the 22-item Afghan Wellness Questionnaire, which assesses the degree of emotional distress people experience in a cultural context^{64,65}. Questionnaires were given to 324 adults in eight districts of Kabul, revealing high to moderate levels of depression, anxiety and traumatic grief; and poverty that plague the country.

A summary of the findings:

- Women have the highest levels of depression, traumatic grief and anxiety. By comparison, most men report moderate levels.
- Widowed women are at greatest risk for emotional problems and impaired psychosocial functioning.
- The more children men have, the better their mental health. However, the opposite holds true for women: The more children they have, the higher their levels of emotional distress.
- As men age, their mental health gets worse. However, age is not related to mental health for women.-(Miller)

Despite experiences of violence and loss, many showed high levels of resilience. In the study, Afghans described losing hope and withdrawing socially as "leaving the world" and not using the resources God provided them by withdrawing into grief. "For Afghans, whose sense of self is totally entrenched in their social networks and in their faith in Islam, 'leaving the world' is really a kind of psychological suicide," Afghans tend to place their identity in their family and community. This differs from Western culture, in which individuals often put

themselves at the center of the social world and the family, community and society. "It is hard for Afghans to talk about 'I' without thinking about 'we,'" according to the study, which concluded that the country needs mental health programs to serve youth as well as women, particularly emotionally vulnerable war widows.

Sufferings of Afghan refugees in camps

Following is an account of visit by the author and colleague to the Afghan refugee camps at the Pak/Afghan border and around Afghanistan to Spin Buldak in November 2001:⁶⁶

Afghani people have suffered more than two decades of violence, human rights abuses, displacement, devastation and war. Many became homeless in their own country, bearing the pain and sufferings. Their homes and fields were ruined and they were forced to take refuge in camps established by welfare agencies in their own country and in the neighboring countries. The authors who visited the refugee camps established in Chaman-Kandhar border and at Spin Buldak noticed that the beautiful greenery, orchards and houses had simply disappeared by heavy cluster bombings. The camps were spread systematically in lines over the flat dusty area where the ground was a thick layer of powdery mud without a green twig in sight. It was a surreal experience, as if one had reached the place where a nuclear bomb had exploded. For the refugees, in their own words, it was an apocalyptic experience. They were living in miserable conditions and suffering the worst kind of human misery. It was observed that most people were numbed by continuous war and suffering.

Elderly or disabled men and boys sat solemnly outside their tents, with their tasbihs (prayer beads), or were seen praying in a makeshift mosque near the camps. Women remained in the camps with babies and young girls and some children were idly loitering in the open area near the camps. They were like dazed, apathetic souls, without any complaints. The saddest comment made by relief workers was that these refugees never asked for anything; not even food. Some villagers chose to remain in the ruins of their houses, where relief workers would deliver food and other essential items. 'These are proud Afghans, they will die, but not beg', said a relief worker. Mufti et al., 2005⁶⁷ conducted a survey of the adult population in a village in Nangarhar in Eastern Afghanistan and found high rates of psychiatric morbidity. Afghanistan is a country where violence is not unusual at any time and people are used to it. The country has been in civil war for over three decades. More than 70% of the population fulfilled the criteria for

some form of mental illness. Major depression was 27.9%; Dysthymia 8%; PTSD 53%, psychotic disorders 5.6%; and generalized anxiety disorders at 9%. The male female ratio was 1:2 Even though, high rates of PTSD could be due to the traumatic events of the country's recent past, high rates of depression and anxiety also might reflect the general unrest, insecurity and hard times the population has endured These findings bring to the forefront the silent human cost of armed conflict and the need for rehabilitation and healing of the society.

Religion in particular can bind a person to a peaceful past; strengthen a sense of identity; and provides quicker relief. Spirituality acts as a buffer for trauma here. Whatever is culturally appropriate must be encouraged to continue the healing process

Psychosocial effects of conflict on Kashmiri population

The struggle for independence in Kashmir can be equated to the Palestinian struggle for their occupied territories. However, compared to Palestinians the Kashmiri's struggles seem muted and invisible. Kashmir suffers in isolation with limited support from the international media nor do they have notable help from the international humanitarian support agencies. Ongoing armed conflict in the last two decade has had significant psychosocial consequences affecting the physical, cognitive and emotional health of many there. Although no official figures are available, mental health professionals agree there has been an increase in the number of physical and mental health disorders in Kashmir over the last 20 years. Kashmir's Composite Rehabilitation Centre (CRC) states that an estimated 30 - 40% of all those seeking their services have been affected by the state conflict. Research studies indicate that a significant number of Kashmiris are in need of treatment for PTSD.⁶⁸

Violence has affected many families living in Kashmir one way or another, which raises the potential for serious effects on their well-being, e.g. relationships become strained, and higher risk of accidents is not uncommon after severe stresses and the danger of alcohol and drug abuse increases (CRC)⁶⁹.

According to a human rights group, by 2000 the number of people reporting PTSD symptoms was around 38,696 (Jammu Kashmir Coalition of Civil Society (JKCCS)) rising to 48,000 by 2002.⁶⁹ Prior to the eruption of conflict in 1989, there were hardly any known cases of PTSD. In 1989, an estimated 1700 patients attended the Kashmir's only psychiatric hospital. By 2002, the number of patients had reached 48,000. In the conflict

zone, women and children were found to be worst hit. Not only has a whole new group of widows and 'half widows' come up, but a growing number of women are seen to be afflicted with various psychosomatic diseases as a result of continued trauma from the past decade⁶⁸ Nearly 60% of Kashmiris reported being exposed to major trauma and one out of six reported PTSD symptoms at some point in their life⁷¹. Another survey reported 40% of orphaned children, believed to be more than 60,000 in number in Kashmir, suffer from a significant psychiatric disorder. Because of traumas and the constant threat of danger, over one-third of locals will at some point suffer from a medication-necessitating mental disorder. Mental health groups estimate that 60,000 Kashmiris committed suicide last year; a record number.⁷⁰ Many factors with causal links to PTSD are apparent in Kashmir, e.g. loss, fear, distrust, random violence, a sense of powerlessness. Kashmir illustrates what researchers have long suspected: that prolonged exposure to direct confrontation results in still greater anguish. People don't become used to violence; they either become more vulnerable or more resilient as a consequence. Under such pressure, the social networks that glue communities risk being diminished. 'This is a Muslim society that used to have the lowest rate of suicide in India. But the past few years have seen a spurt of cut throats and burns.'⁷¹

Kashmir's extreme case raises troubling questions for conflict areas elsewhere. What happens when a large population suffers from PTSD? What happens to a generation born of collective trauma? Does PTSD beget more violence? Are the 'talking therapies,' recognized as effective in the West, a cure for a culture where people believe in ghosts? How can an entire society be healed? Not easily, says Kaz de Jong, a mental health advisor with MSF-Amsterdam, (Médecins Sans Frontières), which operates a mobile clinic in an attempt to reach the more remote areas; de Jong estimates the prevalence of psychological distress in Kashmir is 33% - one of the highest rates in the world. Depressed women pass on their hopelessness to the next generation. Children are reporting to psychiatric clinics in greater numbers. So, too, are young men of fighting age, an unheard of development in a culture where males don't normally admit to weakness. Even more surprising is the rise in suicides, especially among males.⁷²

The continuation of armed conflict in the state of Jammu and Kashmir over the last 12 years has resulted in the brutalization of society. In the militancy and counter militancy operations mounted by the forces of Indian state, nearly 70,000 Kashmiri's have been killed; more

than 15,000 women have become widows; while 1000 women are living the lives of 'half widows' as the fate of their 'missing' husbands remains unknown. Six-thousand people are believed to be the victims of enforced or involuntary disappearances. More than 25,000 children have become orphans. Schools, colleges and universities have not been functioning for the last 10 years.⁷³

Psychosocial impact of war against terror on Pakistan

Starting from the Soviet invasion of Afghanistan in the early 1980s, Pakistan has suffered from trauma and terror for more than three decades now.⁷⁴ Pakistan has been host to more than four million refugees from Afghanistan and taking care of Afghan refugees for over four decades. Militancy, terrorism and drone attacks have taken a psychological toll on the dwellers of violence-wracked Malakand and the Federally Administered Tribal Areas (Khyber Pakhtunkhwa KPK). Every third person in South and North Waziristan, Bajaur and Swat suffers from depression and many women and children complain of recurring nightmares of blood-splattered bodies and homeless families living in destitution.

Persistent violence has generally created immunity and an unusual resilience, which has led to increasing tolerance to violence in the society. The violence apparently has permeated in the seams of the society, thereby making people insensitive, and intolerant; which further results in escalation of violent incidents As a consequence people suffering from phobic and anxiety disorders who have been stabilized suffer from relapses following each terrorist attack. Anger resentment, anxiety, depression and frustration have affected the work performance and interpersonal relationships of a large proportion of people. Continuous news of fresh terrorist attacks in the country has resulted in loss of social interaction and cohesion among people. People end up continuously watching television where distressing news and horrific images of bomb blasts or the plight of IDPs in camps are constantly being flashed across the screen. Many are afraid of travelling even in their own vehicles; often, parents are reluctant to send their children to educational institutions after hearing apprehensive news.

There is perplexity and confusion in the minds of people, as they have lost faith in their leaders and their clergy. 'Who is the enemy and who is the friend of Pakistan' is a dilemma facing every Pakistani and there is an escalation of anger and bitterness among common people against the government and the state apparatus.

Effect of terrorism and insurgency on Pakistani women

Terrorism is widely propagated as anti-West activity; however, it has affected far more lives of Pakistani and other non-Western communities. The effects of trauma resulting from terrorists' activities have not been studied as extensively as have other forms of trauma, particularly in countries like Pakistan.⁷⁵

A complex interplay of social, political and religious values, along with the frequent violent suicide bombing incidents, has serious implications for the mental health of the Pakistani people; particularly in the North West-Frontier Province (NWFP) of Pakistan, which has been the center stage for all violent activities of militants since the early 1980s. The civilian population has been the target of terrorism and routinely blamed as perpetrators of these terrorist activities, which have led to resentment and confusion in the civilian population in other areas of Pakistan.

Collateral damage caused by the 'war on terror', waged by the U.S. and its allies in Afghanistan since 2001, may well extend to psychological trauma sustained by thousands of women in the bordering areas of north-western Pakistan. Of the 15,000 people from the Federally Administered Tribal Areas (FATA) treated by psychiatrists at the Khyber Teaching Hospital in 2013, an estimated 9,833 were women. "Many of these women had lost relatives or friends either at the hands of the Pakistan army or Taliban militants." The prolonged war has caused psychological problems to a majority of the residents of the FATA; especially the women. In 2013, the WHO reported an estimated 451,377 people, including 345,899 women, suffered from psychological problems there. According to the London-based Bureau of Investigative Journalism, since drone strikes were first launched in 2004, more than 2,500 people may have died in the unmanned aerial attacks over the FATA and nearby areas of Pakistan. The strikes have added to the trauma of the local population in the FATA. In 2014, the United Nations Refugee Agency (UNHCR) reported more than 100,000 people have been displaced, mainly from the Khyber region, as a result of a recent increase in the intensity of fighting.

In many Muslim countries including Pakistan, there is high prevalence of poverty, which makes it easier for terrorist groups to hire people. Secondly, poor literacy rates, and the incorrect interpretation of the concept of Jihad in Islam, is another important reason for impoverished boys, particularly the orphans from Afghan War in madressah's (religious seminary) to sacrifice their lives for jannat (heaven) in the next world.

Terrorist attacks have seriously affected the quality of life of an average Pakistani. There is reported increase in the anxiety disorders, panic attacks and mood disorders in the Pakistani population, particularly in the larger cities of Karachi, Lahore and Islamabad. Women suffer economically and socially, as their mobility and work is impacted due to frequent terrorist attacks. Moreover, many report intense, phobic anxiety disorders and moderate to severe affective disorders.⁷⁶ There has been a reported increase in cases of both acute and chronic PTSD at the author's private practice in the suburbs of Karachi. Rough estimates of about three patients per month refer themselves or are referred by the families for symptoms of PTSD

Who is responsible for internally displaced persons (IDP'S)?

Women and children comprise nearly 80% of internally displaced persons and refugees. The war in Bosnia, for example, led to the displacement of millions of civilians, mainly women. Even a decade after the civil war, many of these civilians are still living as refugees in their country of origin or in abroad. The intensity and nature of this war has resulted in unprecedented numbers of people escaping conflict, to the extent that people displaced by war in the 1990s has had a tremendous public health impact.³ In war and conflict zones, women are more likely to face the threats of community violence outside the home.² Women have experienced violent acts, as seen in recent conflicts, including those in the Gaza and in Iraq. There is growing recognition by international organizations about the specific risks that women face in refugee camps.^{77,78} Women who search for refuge from the misery and privation arising from armed conflicts may end up experiencing further harassment in the refugee camps or settlements, which from an outside perspective, is generally perceived to be a safe environment.⁷⁹

Over the last 15 years, the nature of displacement has shifted dramatically. The growing number of internally displaced persons, who generally do not have access to international aid, has created what is being called a 'crisis of displacement'. Because of border closings, many people who would have become refugees are trapped inside a country at war. Basic services, such as water and electricity are disrupted; food supplies are cut off. People fear the violations of international human rights and humanitarian law that have become endemic to many of these wars. Under such conditions, people flee wherever they can. More often than not, they find refuge within their own country, although many

displaced people can be internally displaced at one stage, then become refugees and then in some cases return to their native country; but remain internally displaced. As of 2001, an estimated 13.5 million people were displaced internally in various nations. While refugees are entitled to assistance and protection under international law, the internally displaced have no institutional or legal mechanism for receiving international assistance. The key legal document safeguarding refugee rights is the 1951 UN Convention Relating to the Status of Refugees and its 1967 Protocol. Under the Convention, States are expected to cooperate with the UNHCR, which provides protection and assistance in partnership with governments, regional organizations and non-governmental organizations (NGOs).

The situation for internally displaced persons is less clearly defined. Although international humanitarian law guarantees all civilians the right to protection and assistance, the fact is that humanitarian agencies can only assist internally displaced people if the host country allows them access. In addition, since there is no single agency within the United Nations mandated to provide for internally displaced persons, it can take time to raise the funds, and set up and coordinate the aid programs required. There remains the risk that many internally displaced people will fend for themselves or rely on poorly run, often dangerous camps that are not always under the protection of international agencies. Many disappear into cities, doubling up with family or friends, struggling to survive on their own.

In response to the vast numbers and needs of internally displaced persons, the UN Secretary-General in 1992 appointed a Special Representative to develop a framework to protect IDP'S rights. In collaboration with a team of international legal experts, Guiding Principles for Internal Displacement were developed.⁸⁰ A hallmark of the Guiding Principles is the call for specific recognition of the needs of women. They acknowledge the situation of female heads of households; emphasize women's physical and psychosocial needs; reaffirm their need for access to basic services; and call for their participation in education and training programs. Over the past five years, humanitarian agencies have promoted the Guiding Principles and used them as a framework for providing assistance and protection to the internally displaced. On the occasion of International Women's Day, the Women and War advisor of the ICRC, Florence Tercier, explained why the predicament of displaced women is a particularly difficult one. For instance armed conflict displaces people from their homes and livelihoods. Women often have to cope with the loss of

close relatives and find new ways to support themselves and their families. The ICRC works to focus on the specific needs of women displaced by war.

International humanitarian law has at all times given women general protection equal to that of men. Simultaneously, humanitarian law treaties identify the need to give women added special protection according to their particular needs. The four Geneva Conventions of 1949 and their additional protocols protect women and men as components of the civilian population not involved in an armed conflict. Both women and men of the armed forces are also protected when taken into custody by the enemy. However, the fact is that many women encounter services that may exacerbate their feeling of disempowerment, due to their focus on pathology and reduced functioning instead of promotion of health and recovery. Thus, if accessible services are disempowering women, there is a risk that they will find little relief when referred to care. Therapists must be sensitive to the needs of these women. Culturally competent staff that encourage empowerment, self-management and autonomy in daily activities, can help early recovery and independent survival of these women.⁸²

Conclusion

Muslim women worldwide suffer tremendous psychological morbidity be it in their own countries in peacetimes or as refugees and IDP'S; and in political and ethnic conflicts, wars or insurgencies. Women often shoulder the burden for their families and extended families and manage household affairs; they are often the major bread-winners within single parent families. War widows are exposed to many traumatic experiences; being single women; they risk torture, humiliation and sexual violence. The most unfortunate aspects of sexual violations are sexual harassment assault, rape and trafficking as a consequence of war. In the Muslim world, women who have been harmed in this way routinely suffer alone and in silence – often made to feel responsible for what has taken place at the risk of being stigmatised and made accountable for upholding the family honor. Cultural and religious values play a significant role in the lives of Eastern Mediterranean Muslim women. It is recommended that interventions to address their experiences include active provision of psychosocial support for Muslim women. The author's experience of Afghan refugee women in camps and women survivors of the 2005 Pakistan earthquake has been vital in developing a "sense of coherence" that peoples' ability to create positive health is dependent

upon a combination of the ability to assess and understand their situation, to find meaning in their circumstances and to develop resilience to cope with traumatic events.⁸³

Culturally sensitive diagnostic approaches are needed to assess trauma symptoms and associated impairment. Immediate psychosocial relief operations can start with non-specific interventions to help groups of affected people organize around issues of feeling safe and encourage perception for the future that involve mastery and commitment when rebuilding their lives.^{84,87} The main issue is the anxiety and indecision of local psychosocial support teams about whether to adopt Western approaches to assessment, diagnosis and treatment or otherwise strengthen the local non-Western cultural approaches. The debate suggests that diagnoses may be controversial and there are at least two ideologies on the impact of trauma, disaster and conflict on different populations. We need to think about ways to develop meaningful psychosocial support programs that are culturally appropriate

Research suggests that a strong belief system, whether grounded in faith or in a political ideology, is a protective factor for refugees not least because it assists in coping with trauma.⁸⁸ Relocation to a new country may challenge one's existing sense of coherence. Hence it is vital that mental health services should work to support refugees' resilience by helping them to understand and find meaning in their experience and to adopt health-promotion behaviors. When providing psychosocial support for Muslim refugee women, the culture, religion and gender sensitive approach is obviously vital in an era of many conflicts and wars in the Muslim world.

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المخلص

لا يعرف العالم الخارجي الكثير عن الصحة النفسية للمرأة المسلمة ومعاناتها أثناء ظروف الحرب والارهاب، فالقليل فقط عن هذا الموضوع قد تم نشره في المجالات العلمية، وبشكل عام فإن تأثير الحرب والبطش على المرأة لم يتم نشره إلا منذ عقدين من الزمن. إن حرب الخليج والعراق وغزو أفغانستان والهجمات المفجعة في باكستان والعمليات الانتحارية في مدن الرنيسة والعزام العشائري هناك، وكذلك لجبيء حرب سوريا قد لفتت إنتباه الصحافة خاصة بعد حر الحادي عشر من ايلول على الأراب. إن المشاركة الفاعلة من قبل مؤسسات منظمة هيئة الأمم المتحدة وحقوق الإنسان والنشاطات على الإنترنت والتوتر قد لعبت دوراً حيوياً في زيادة " حساسية" العالم على معاناة المرأة المسلمة في منطقة الصراع. إن العنف الموجه نحو المرأة والإبتزاز الجنسي لها في الملاجيء وخاصة في البوسنة والعراق وأفغانستان وسوريا قد جعلت الأطباء والعاملين في حقل الطب النفسي وعلم النفس وكذلك الصحافة وغيرها من التنظيمات الحرفية تأخذ موقفاً محدداً من كل ذلك وقد جرت الكثير من المحاولات لدعم ضحايا تلك الأحداث من النساء ضد هذه الصدمات النفسية. إن ضحايا العنف (كالتفجيرات والهجمات الأرابية والقتل الجماعي) بحاجة طارئة للدعم النفسي والإجتماعي وخدمات إعادة التأهيل وخدمات الإرشاد وكذلك العلاج لمنع الآثار بعيدة المدى والإعاقات الدائمة الناتجة عن ذلك. ويترتب على ذلك زيادة العبء على خدمات الصحة النفسية من الناحية المادية في هذه الدول المتأثرة بالحرب وهذا يؤدي إلى تصعيد مشاكل الصحة النفسية عالمياً. لا احد يستطيع أن يعيش دون التأثير بما يراه من صدمات على شاشات التلفاز. إن حفظ الكرامة والأمان والمحافظة على صحة هؤلاء الضحايا نفسياً وجسدياً لم يتم تدبيره ومعالجته بشكل كافٍ من قبل منظمة الصحة العالمية والمؤسسات المنبثقة عنها ولا من قبل مؤسسات حقوق الإنسان وخاصة دون التمييز. إن من واجبا الحرفي والأخلاقي أن نوحد جهودنا كأطباء نفسية بجعل هذا الأمر المأساوي في المقدمة ويجب علينا اقتراح الطرق لمنع وعلاج وإعادة تأهيل هذه المعاناة الصامتة لضحايا الحرب والأراب.

Author

Unaiza Niaz MD, DPM, FRCPsych

Chair Section on Women Mental Health in the World Psychiatric Association

Advisory Board Member of the International Association for Women's Mental Health

Regional Representative, Eastern Mediterranean Region & Board Member of the World Federation of Mental Health

Adjunct Professor of Psychiatry, University of Health Sciences, Lahore Pakistan

Visiting Faculty, Dow University of Health Sciences, Karachi Pakistan

E-MAIL drunaiza@gmail.com

The Arabic Diagnostic Interview for Genetic Studies: aDIGS: Psychometric Properties

Elie G. Karam, Ziad Kronfol, Mariana Salamoun, Lynn Farah, Marie Therese Nacouzi,
Stephanie Loukieh, Yasmeeen M Assad, Grace Aranki, Melvin G McInnis

الحوار العربي التشخيصي للدراسات الجينية

إيلي كرم ، زياد قرنفل ، ماريانا سلمون ، لين فرح ، ماري تيريز ناكوزي ، ستيفاني لوقيا ، ياسمين اسعد ، غريس عرانكي ، مالفين مكينيس

Abstract

Objectives: The aim of this article is to facilitate genetic research in mental health in the Arab world through a specific interview designed for this purpose and used internationally mainly the Arabic Diagnostic Interview for Genetic Studies. **Methods:** The original English Diagnostic Interview for Genetic Studies (DIGS) was translated and adapted to Arabic by two teams from Lebanon and Qatar. It was successfully field tested in both countries in an ongoing genetic study. **Conclusion:** The Arabic DIGS is now available in the Arab world and has been field tested by both the Lebanese and the Qatar teams and should be easy for use by Arab researchers. A preview of the Arabic DIGS can be seen at IDRAAC website www.idraac.org (search for DIGS).

Key words: Genetics, Arab, DIGS, Research, Interview

Declaration of interest: Grant from the Qatar National Research Fund (a member of Qatar Foundation).

Introduction

Mental disorders account for a significant portion of disease burden throughout the world¹ and research in the field is understandably on the rise globally on several fronts. One of those fronts, genetics, has already achieved remarkable success in confirming what twin and adoption studies had been showing repeatedly: we inherit a sizeable portion of what defines us as human beings, including the malfunction of those attributes².

Mental disorders are diagnosed at present by a set of criteria, several instruments having been developed over the past four decades specifically designed for particular goals and settings (office, epidemiology, clinical trial). For the specific field of genetic studies, the National Institute for Mental Health (NIMH) in the USA developed a semi-structured Diagnostic Interview for Genetic Studies (DIGS) to assess the phenotypes of most psychiatric disorders.

The DIGS offers “(1) polydiagnostic capacity; (2) a detailed assessment of the course of the illness, chronology of psychotic and mood syndromes, and comorbidity; (3) additional phenomenologic assessments of symptoms; and (4) algorithmic scoring capability” and is recommended by its authors to be used as “part of archival data gathering for genetic studies of major affective disorders, schizophrenia, and related conditions”³. Since then, the original English DIGS has been translated into and used in several languages among

which Colombian Spanish⁴, Croatian⁵, French⁶, German⁷, Hindi⁸, Korean⁹, Portuguese¹⁰ and Spanish¹¹.

The Arab world has been part of this increasing trend in mental health research¹². While earlier research focused on descriptive data in subgroups, the last decade has witnessed a sharp rise in epidemiological studies which are now relatively well established in the Arab region, and conducted on national levels, partly due to the availability of reliable and valid interview tools, the most widely used being the Composite International Diagnostic Interview (CIDI)¹³ adapted into Arabic by IDRAAC in Lebanon.

To date, the CIDI has been used to collect national data for Iraq¹⁴, Lebanon^{15, 16}, and most recently Saudi Arabia. On the other hand, the cultural specifics of higher levels of consanguinity in the Arab world offer an added value and thus offer a unique opportunity to conduct genetic studies¹⁷. A team of experts from Lebanon and Qatar embarked on translating and adapting the DIGS into Arabic as a first step towards an enhanced line of genetics research in this region. The purpose of this paper is to introduce the Arabic version of the DIGS (aDIGS) and discuss some of its properties.

Genetic Studies and the DIGS

The DIGS was designed to capture the spectrum of phenomenology related to psychiatric disorders and record the information in a manner that could be easily digitized in a database³. The adaptation of a specific system is an advantage in terms of reliability and

consistency of diagnostic patterns. The DIGS was designed to capture extensive and detailed clinical data from a lifetime perspective and to be able to provide the diagnostic clinician with a framework around which to qualify the clinical syndromes. It was designed specifically with genetic research in mind, whereas other instruments such as the CIDI were designed with epidemiological studies in mind. Once translated and adapted in a culture the preponderance of studies, and specifically those with genetic research, are completed using the DIGS. The advantage is the capacity to directly compare diagnoses and phenotypes across cultures. Thus, the genetic studies on bipolar disorder from Korea are completed using the DIGS as a diagnostic instrument.

Recently a confirmatory study on the association of ANK3 and bipolar disorder in Asia was published¹⁸; the availability of the DIGS allows for a systematic comparison of subtypes of bipolar disorder¹⁹. The Spanish and French versions of the DIGS have been widely used world-wide^{20,21,22,23}. There is a concerted effort within the Psychiatric Genomics Consortium to expand the samples available for genetic analyses²⁴ in order to increase the power for identification of additional loci and to be able to compare genetic effects across disorders.

Methods

The work for the present study was initiated simultaneously in two different sites: Lebanon and Qatar. In Lebanon, the work was conducted by the Institute for Development, Research, Advocacy and Applied Care (IDRAAC) in partnership with the Faculty of Medicine at Balamand University and Saint George University Medical Center. In Qatar, the project was done in association with the Research Department at Weill Cornell Medical College in Qatar. The entire project was conceived in collaboration with the Department of Psychiatry at the University of Michigan (USA). IDRAAC through its team of multidisciplinary experts has a well-established history of conducting mental health research including translating and adapting instruments to Arabic and Weill Cornell Medical College in Qatar has embarked on a vibrant program of research in many areas including genetics and mental health.

The present study was completed over a three year period (September 2009 to August 2012) and was funded by the Qatar National Research Fund NPRP program. The study was approved by the Institutional Review Board (IRB) committees of Weill Cornell Medical

College in Qatar and the Saint George University Medical Centre/Faculty of Medicine, Balamand University, Lebanon, which is registered with the US Office of Human Research Protections (OHRP) in the Department of Health and Human Services.

All researchers (17 from Lebanon and five from Qatar) who participated in the adaptation of the Arabic DIGS in both Qatar and Lebanon attended audiovisual training on the DIGS provided by Dr MGM to insure consistency with other international sites on the delivery of the DIGS. The translation of the English DIGS into Arabic was initially attempted by the Qatari team. The research team from Lebanon at IDRAAC then undertook the following steps. First, it located equivalents of all DIGS questions found in the Arabic CIDI version 3.0 previously adapted by IDRAAC into Arabic and used extensively on more than 7,289 interviews to date. Second, cognitive debriefing was conducted by experienced clinical interviewers from the Lebanese team on 34 subjects (24 psychiatric patients and 10 healthy controls).

Patients were selected from the outpatient psychiatric unit at Saint George University Medical Center in Lebanon and had a variety of diagnoses: Major Depressive Disorder, Anxiety Disorder, Bipolar Disorder (with or without psychotic symptoms), Schizoaffective Disorder, Obsessive Compulsive Disorder and Substance Use Disorders. The average duration of the cognitive debriefing was three hours. The Arab Psynet technical dictionary (www.arabpsynet.com) as well as the Arabic Diagnostic and Statistical Manual for Mental Disorders (DSM) version IV²⁵ were checked to refine the wording. Then a comprehensive series of meetings were held with the senior research team at IDRAAC. The final wording was reached after reviewing all the above sources and by consensus. The Arabic DIGS was then shared with the Qatari team. In Qatar, several interviews using the Arabic DIGS were conducted with patients with schizophrenia, bipolar disorder and normal controls. Some minor refinements in the wording were introduced.

Remarks

Individual changes from the original English DIGS were introduced in Lebanon and Qatar to allow for the following:

1. The ethnicity card and questions about the ethnicity/race in the questionnaire were modified. Arab countries with a specific code for each country were added.

2. All technical words (section name, disorder, medical terms, and specific symptoms) were followed by their respective English terms for a better understanding.
3. The question about the discharge from the Army in the Demographic section was modified.
4. The imperial measurements of height and body weight were replaced by the metrical system of measurements, which is more widely used in the Arab world.
5. In the C2 section, the question about the President of the United States was replaced by the president/monarch/leader of the respective Arab country.
6. In section E, the medications card was adapted to the Lebanese and Qatari market. Some medications not mentioned in the English DIGS were added to reflect common use in this part of the world.

Difficulties in Lebanon and Qatar

Time: In Lebanon and in Qatar, due to occasional “tiredness” of the patients, the aDIGS was administered in two sessions. Since the interviewers were clinicians with very extensive expertise, this might not have been the same in other settings. Indeed it has become apparent to us that in using the DIGS like other clinically based semi-structured interviews (SCID), it is essential to have a very good understanding of the disorders under consideration and to have asked similar questions, in a variety of settings, to a very large number of patients. It is not meant to be delivered by individuals who simply have been exposed to the training such as in the fully structured interviews used in large epidemiologic studies (DIS, CIDI).

Psychosis: A special problem encountered in Qatar is the rather common belief among Muslims in general and Qatari and other GCC nationals in particular that the world is filled with invisible angels called “jinn”. So when a patient refers to “jinn” in his/her conversation, it is often difficult to tell whether the patient is psychotic or not. Using the aDIGS to assess psychosis does not make the issue easier to resolve and might need additional probing and interview with the family members.

Substance use: One problem with the DIGS is the difficulty differentiating between drug induced psychosis and bipolar disorder or schizophrenia. Here again repeated interviews, including with family members,

might resolve this issue although, judging from our clinical practice, this often remains a thorny problem.

Chronicity vs. recurrence: In assessing the longitudinal course of an illness, it is often difficult to assess return to baseline when the person had been all along unemployed, lives with the family who usually cares for him/her anyway, and social interactions outside the home are limited. We found that data from the families are extremely valuable to resolve this issue.

Perhaps one of the best features of the DIGS is the ability to describe verbatim what the patient is saying and deciding later on the form of psychopathology. The same is true with the course of illness: provide a description and decide later.

Limitations

We have not formally conducted inter-rater reliability measurements for the aDIGS partly because patients were reluctant to sit for another lengthy interview. However, inter-rater variability of the DIGS has been reported to be good to excellent in most translated versions and mirrored the findings in the original US version³. Specific problems such as the low inter-rater reliability of schizoaffective disorders in the US version, was confirmed by the Columbian Spanish⁴, the French⁶ and the Korean⁹ versions. This is possibly due to the inherent low inter-rater reliability of schizoaffective disorder and not limited to the DIGS. Another reported problem with reliability such as Bipolar II in the French version might be due to small sample size. We expect the inter-rater reliability of the aDIGS to be similar as long as it is used only by trained and experienced clinicians. The questions asked are overall quite clear and mental health clinicians in the Arab world, like their counterparts in the West, are trained heavily in the DSM or the ICD systems of classification of mental disorders. Another limitation is that the aDIGS has not been field tried in countries other than Lebanon and Qatar and slight modifications might be needed in other Arab countries. Lastly, an update of the DIGS to DSM-V will necessitate modifications of some sections accordingly.

Conclusion

Genetic investigations of mental disorders have increased worldwide and trans-cultural and trans-ethnic data add a wealth of information to the increasing knowledge in the field. Genetic studies in the Arab world have been timid so far and international cooperation, which is essential for genetic studies, is a welcome opportunity to be exploited. In addition, the Arab world

still carries a higher rate of consanguineous marriage, albeit with differences across Arab countries. In addition, the regular proximity of families, frequently living in the same dwelling or the same neighborhood, renders the Arab world an interesting site for genetic investigation. Structured interviews such as the DIGS offer an essential tool in this endeavor. The use of identical tools has facilitated cross national comparisons in an unprecedented way in the field of mental health epidemiology^{26,27} and this has encouraged us to do the same for the DIGS. Our translation of the DIGS into Arabic (aDIGS) will hopefully facilitate future work cross nationally. A preview of directions for the DIGS can be seen at IDRAAC website on www.idraac.org and search DIGS.

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المخلص

الهدف: يقدم في هذه الدراسة فريقان من في لبنان و قطر "الحوار التشخيصي العربي للدراسات الجينية". **المنهج:** ترجم هذا الحوار التشخيصي من اللغة الإنجليزية إلى اللغة العربية. ثم تم تكيفه و اخضاعه إلى التجربة الميدانية في البلدين. **النتيجة:** الحوار التشخيصي العربي للدراسات الجينية أصبح الآن في متناول الباحثين العرب. وهو سهل الاستعمال من قبل الإخصائيين ويفتح الأبواب أمام التعاون العربي والدولي. باستطاعة القارئ تصفح بعض مقتطفات الحوار التشخيصي العربي للدراسات الجينية على موقع IDRAAC الإلكتروني على الرابط التالي (www.idraac.org (Search DIGS)).

Corresponding author

Elie G. Karam, IDRAAC (Institute for Development Research, Advocacy, & Applied Care)

MIND (Medical Institute for Neuropsychological Disorders)

Dept. of Psychiatry and Clinical Psychology,

St. George Hospital University Medical Center

Faculty of Medicine, Balamand University

P.O. Box: 166227 Ashrafieh, Beirut, Lebanon 1100 2110.

Email: egkaram@idraac.org

Authors

Elie G. Karam MD, Professor and Dept. of Psychiatry & Clinical Psychology, St. George Hospital University Medical Center, Balamand University, Faculty of Medicine, Beirut, Lebanon. Head of Institute for Development, Research, Advocacy & Applied Care (IDRAAC), Beirut, Lebanon. MIND (Medical Institute for Neuropsychological Disorders), Beirut, Lebanon.

Ziad Kronfol MD, Professor of Psychiatry, Weill Cornell Medical College in Qatar, Doha, Qatar; Department of Psychiatry, Hamad Medical Corporation, Doha, Qatar and the University of Michigan, Ann Arbor, MI, USA.

Mariana Salamoun MS, Institute for Development, Research, Advocacy & Applied Care (IDRAAC), Beirut, Lebanon.

Lynn Farah MS, Institute for Development, Research, Advocacy & Applied Care (IDRAAC), Beirut, Lebanon, Head of Social Services, Caritas Lebanon.

Marie Therese Nacouzi TS Nurse, Clinical Assistant at MIND (Medical Institute for Neuropsychological Disorders), Beirut, Lebanon.

Stephaine Loukieh BS Nurse, Clinical Assistant at MIND (Medical Institute for Neuropsychological Disorders), Beirut, Lebanon.

Yasmeen M Assad MA, Research Department, Weill Cornell Medical College in Qatar, Doha, Qatar and Children Rehabilitation Center, Hamad Medical Corporation, Doha, Qatar.

Grace Aranki BS, Research Department, Weill Cornell Medical College in Qatar, Doha, Qatar.

Melvin G McInnis MD FRCPsych, Thomas B and Nancy Upjohn Woodworth Professor of Bipolar Disorder and Depression Professor of Psychiatry, Department of Psychiatry and Depression Center, the University of Michigan, MI, USA.

Which is the Optimal Depression Rating Scale to Identify DSM-IV Depression in Schizophrenia? A Diagnostic Validity Comparison of Five Mood Scales

Twana Abdulrahman Rahim, Zeraq Masud Al-Salihy, Mahmood Qasim Mahmood,

Asma Subhi Muhyaldin, Alex J Mitchell

ما هو مقياس الكابة المثالي لأيجاد الكابة حسب الدليل التشخيصي و الأحصائي الرابع (DSM-IV) لدى المصابين بالفصام؟ مقارنة
الصلاحية التشخيصية لخمس مقاييس المزاج

توانا عبدالرحمن رحيم ، زيرك مسعود الصالحي ، محمود قاسم محمود، أسماء صبحي محي الدين ، أليكس متشل

Abstract

Objectives: To find a brief semi-structured or self-report depression rating scale with the highest accuracy for a diagnosis of DSM-IV defined depression in patients with schizophrenia from Iraqi-Kurdistan. **Methods:** 200 people with schizophrenia living in the Kurdistan Region of Iraq were recruited. The Mini International Neuropsychiatric Interview (MINI) was used to define the presence of schizophrenia; depression was further defined according to DSM-IV criteria. Symptoms of depression were examined using five scales: the Patient Health Questionnaire (PHQ2, PHQ9), Hospital Anxiety and Depression Scale (HADS), the Centre for Epidemiological Studies Depression scale (CES-D) and the Calgary Depression Scale for Schizophrenia (CDSS). Three psychiatrists conducted interviews and rated the Clinical Global Impression (CGI). ROC curve analysis was used to establish the optimal cut-off as well as comparative sensitivity and specificity. **Results:** Eighty (40%) patients had DSM-IV major depression and 97 (48.5%) had major or minor depression; 157 (78.5%) had at least two DSM-IV symptoms of depression. Comparing the five scales for identification of depression showed the optimal methods for detection of major depression (against non-major depression) were the PHQ9 > PHQ2 > CDSS. Against major depression the PHQ9 was the most accurate method with a sensitivity of 93.8% and a specificity of 84.2%. Optimal methods for detection of major or minor depression (against no depression) were the PHQ2 > PHQ9 > CDSS. The PHQ2 had a sensitivity of 85.6% and a specificity of 96.1%. **Conclusion:** Self-report scales, particularly the PHQ2 and PHQ9 appear to perform well against DSM-IV defined depression in schizophrenia. Further validation against non-DSM-IV standards is recommended.

Keywords: Schizophrenia, depression scale, screening diagnostic validity

Declaration of Interest: None

Introduction

Depression in schizophrenia is a common and challenging clinical problem. The prevalence of depression in patients with schizophrenia is reported to range between 7% and 75% depending on the method of assessment.¹⁻⁷ Rates for major and minor depression combined are poorly studied, but may reach 59%.⁸ Minor depression and sub-syndromal symptoms of depression are increasingly recognized as important.⁹ Indeed, symptoms of depression are very common in those with psychoses; identified in 71% in one study which also found that 23% fulfilled the ICD-10 depression criteria.¹⁰ Comorbid depression in schizophrenia is an important clinical factor influencing clinical outcome. Such patients have higher relapse rates than patients without symptoms of depression,^{2, 11} extended hospitalization,¹² greater cognitive impairment,¹³ poor social functioning,^{14,16} an increased risks of suicide,^{17,20} and poorer quality of life.²¹

Criteria for Depression in Schizophrenia

There is still uncertainty about how best to define comorbid depression in schizophrenia. In recent operational checklists, depression has been defined as post-psychotic depression (ICD-10) and post-psychotic depressive disorder (DSM-IV). However it is clear that depression occurs not only in the post-psychotic phase, but in phases of schizophrenia.^{1,22,24} Lancon et al. (2001) found that 52% had depression in the acute psychotic phase and 38% during more stable periods of the disease.²⁵ ICD-10 has specific diagnostic criteria for post-schizophrenic depression limiting the diagnosis of depressive episode to the 12 months following the psychotic episode. DSM-IV does not require any specific features for post-psychotic depressive disorder other than to exclude depressive symptoms that are better accounted for as medication side effects or negative symptoms.²⁶ DSM-IV also suggests that it occurs only during the residual phase of schizophrenia and is not due to the direct physiological effects of a substance abuse;²⁶

however, such findings are subject to individual clinician judgment.

Scales to measure depression in schizophrenia

Various methods have been utilized to help clinicians assess depression in patients with schizophrenia. Examples of self-report scales include the Beck Depression Inventory (BDI)²⁷ and the Hospital Anxiety and Depression Scale (HADS).²⁸ Observer rated scales have also been used such as the Hamilton Rating Scale for Depression (HAM-D).²⁹ None of these instruments were specifically developed for this population and like all tools may theoretically be influenced by other clinical factors, such as negative psychotic symptoms and extrapyramidal symptoms (EPS). For example, the HAM-D has been shown to be influenced by negative symptoms and EPS in schizophrenia, according to most, (Craig et al., 1985; Goldman et al., 1992; Collins et al., 1996; Kontaxakis et al., 2000; Yazaji et al., 2002)^{30,34} but not all studies.³⁵ In 1990, Addington and colleagues developed a customized scale, the Calgary Depression Scale for Schizophrenia (CDSS), based on items selected from the HAM-D and the Present State Examination,³⁶ which had reasonable ability to distinguish between depression, negative symptoms and EPS.³⁷ The CDSS has a unique format with eight semi-structured questions rated on a four-point scale and one purely observer based item (item nine). The CDSS has been shown to be a reliable, valid, and specific measure of depression in patients with schizophrenia.³⁷ A limitation of many scales, however, is that they are too lengthy or impractical for routine clinical use. Recently a number of short self-report instruments have been extensively validated in primary care and hospital settings. Examples include the two and nine item Patient Health Questionnaire and the seven item HADS-Depression subscale.

Given these developments in screening for depression, our aim was to find the optimal tool with the highest accuracy in comparison to DSM-IV defined major depression and DSM-IV defined major or minor depression.

Methods

Sample and patients

Recruitment involved a non-probability, purposive sample of schizophrenic patients who visited both in-patient and outpatient clinics in the psychiatric unit of the largest teaching hospital and two health centres that provided out-patient psychiatry services in Erbil between the period of April 2009 and March 2010. The process

was undertaken by three trained psychiatrists among the authors.

Patients with schizophrenia were identified with the Mini International Neuropsychiatric Interview (MINI). Within this group, we used DSM-IV criteria for major depression and minor depression without assumptions of causation or phase of illness. We wished to clarify which scales most accurately identified the presence of depression as comorbidity, regardless of opinions about the origin of the depressive symptoms. We did not require the exclusion of cases who were not in the residual phase of schizophrenia. None of the patients had a history of drug use at the time of interview.

Tools

The following scales were used: CES-D; PHQ9; HADS-D and CDSS. The CES-D scale (Radloff 1977) is a 20-item self-report scale designed to measure depressive symptoms in the general population.³⁸ It was found to have a high internal consistency and adequate test-retest repeatability when tested in household interview surveys and in psychiatric settings. The PHQ-9 is the nine item depression scale of the Patient Health Questionnaire³⁹ based directly on the diagnostic criteria for major depressive disorder in the DSM-IV. It is viewed as a potentially valuable tool for assisting primary care clinicians in diagnosing depression as well as selecting and monitoring treatment. The HADS-D is the depression subscale of the HADS, a 14 item self-report scale²⁸ which has been extensively used by hospital and primary care patients with and without somatic symptoms. It has equally good sensitivity and specificity as other commonly used self-rating screening instruments.⁴⁰ As mentioned above the CDSS has been evaluated widely in patients with schizophrenia.⁴¹ All questionnaires applied in the present study were translated into Kurdish since all participants were Kurds. These were then back translated into English by a linguistic expert who was blind to the original English versions. Validities of translated versions were confirmed by a team of ten experts in the field before distributing them to participants.

Analysis

ROC curve analysis was used for each scale against an interview standard diagnosis of depression based on the MINI. In addition, we calculated the optimal sensitivity, specificity and Positive Predictive Value (PPV) and Negative Predictive Value (NPV).

Results

Eighty (40%) patients had DSM-IV major depression and 97 (48.5%) had major or minor depression; 157 (78.5%) had at least two DSM-IV symptoms of depression.

Performance of the PHQ2

Against major depression the PHQ2 was very accurate with a sensitivity of 86.3% and a specificity of 85%. Overall accuracy was 85.5% with an AUC of 0.921. Against major or minor depression the PHQ2 was the most accurate method with a sensitivity of 85.6% and a specificity of 96.1% and an overall accuracy of 91.0%. It achieved excellent accuracy for both rule-in and rule-out of depression in schizophrenia.

Performance of the PHQ9

Against major depression the PHQ9 was the most accurate method with a sensitivity of 93.8% and a specificity of 84.2%. Overall accuracy was 88% with an AUC of 0.957. It had the best case-finding and best screening properties. Against major or minor depression the PHQ9 was the second most accurate method with good sensitivity and specificity (80.4% and 84.5%, respectively). The optimal cut-off point was ≥ 14 .

Performance of the CES-D

Against major depression the CESD was modestly accurate with better rule-out than rule-in properties. It achieved a low sensitivity of 67.5%, but with a specificity of 86.7%. Overall accuracy was 79.0% with an AUC of 0.845. Against major or minor depression the CESD was modestly accurate with a good sensitivity of 81.4%, but with a specificity of only 64.1%. Overall accuracy was 72.5% with an AUC of 0.804. The optimal cut-off point was ≥ 24 .

Performance of the HADS

Against major depression the HADS-D was not particularly accurate and although sensitivity was 95%, specificity was only 35%. Overall accuracy was 59.0% with an AUC of 0.525. It was neither good in case-finding nor in screening for depression in schizophrenia. Similarly against major or minor depression the HADS-D was not accurate with a low specificity of only 29.1%. Overall accuracy was 60.5% (AUC 0.505).

Performance of the CDSS

Against major depression the CDSS was fairly accurate particularly in rule-out (screening). It had a sensitivity of 68.8% and a specificity of 89.2%. Overall accuracy was 81% with an AUC of 0.822. Against major or minor

depression the CDSS was modestly accurate with a sensitivity and specificity of 76.3% and 79.6% respectively. Overall accuracy was 78% with an AUC of 0.824. The optimal cut-off point was calculated as ≥ 6 , although a higher threshold of ≥ 9 was suggested for the diagnosis of major depression alone.

Discussion

We aimed to find a brief semi-structured or self-report depression rating scale with high accuracy in the diagnosis of DSM-IV defined depression in patients with schizophrenia from Kurdistan Region of Iraq. We used a broad DSM-IV definition of major depression as well as major or minor depression (combined) without assumption of causality. This has the advantage of highlighting depression comorbidity in any form that might occur. Using this method we found a high rate of comorbidity in the present sample; indeed, 78.5% had at least two DSM-IV symptoms of depression; 48.5% qualified as having either major or minor depression, and 40% had DSM-IV major depression. Thus minor depression alone was relatively uncommon, seen in only 8.5%.

Comparing five well known scales for the identification of depression showed that the optimal methods for detection of major depression (against non-major depression) were the PHQ9 > PHQ2 > CDSS. The optimal methods for detection of major or minor depression (against no depression) were the PHQ2 > PHQ9 > CDSS. Looking in more detail, rule-in and rule-out accuracy was consistently good or excellent for PHQ9 and PHQ2, but no other scales achieved this level of performance. The HASD-D was the only scale that was rated as qualitatively poor, especially in a rule-out capacity. The superior performance of the PHQ might be expected when the criterion reference under study is DSM-IV defined depression as the PHQ9 asks the same questions required by DSM-IV for a diagnosis. Definitions of both major and minor depressions require that one of two core symptoms (low mood or loss of interest) are present. It would be interesting to define depression according to ICD-10 criteria and repeat the study. It would also be interesting to use a strict definition of post-psychotic depression and see if performance of the scales differs. Our study appears to be the first to examine the PHQ and the CESD in the context of depression in schizophrenia. The superior performance of the PHQ is attractive particularly given the brevity of the PHQ2. However, this requires confirmation ideally against ICD-10 criteria. If one excludes the PHQ because of symptom overlap with

DSM-IV criteria then it appears that the CDSS is the next best scale.

Previous studies involving the CDSS have largely compared it with PANS positive and negatives symptom profile, but rarely against any gold standard for depression.^{34,36,42,43} These have generally demonstrated that the CDSS is able to distinguish depression from negative psychotic symptoms and EPS, but there has been inconsistent relationship between the CDSS and positive symptoms in schizophrenia^{44,46} Further, in our view it is the ability of a scale to identify the core concept of depression that is important rather than its relationship with possible confounding factors. In this regard, Addington et al. (1994) found that a score above six points on the CDSS may best separate patients with schizophrenia and depression from those with schizophrenia alone.³⁷ However, in the present study we found a cut-off point of 8v9 was optimal. Bressan et al. (1998) found that cut-off values of 4v5 were recommended in order to detect minor depression in schizophrenia patients,⁴⁵ which was similar to our optimal threshold of 5v6. To date, only a handful of head-to-head comparisons of depression scales in schizophrenia have been conducted and none have considered the advantages of self-report or semi-structured scales without requiring observer judgment. Lancon et al. (2000)⁴³ examined 95 patients with schizophrenia according to DSM-III-R criteria and the CDSS, Hamilton Depression Rating Scale (HDRS), Montgomery and Asberg Rating Scale (MADRS), and Widlocher Psychomotor Retardation Scale (ERD). There was no criterion standard in this study, but the authors did find high inter-correlations with other depression-rating scales. Kim et al. (2006) studied 84 inpatients meeting the DSM-IV criteria for schizophrenia using four scales: CDSS, BDI, HAM-D and PANSS⁴⁶. The areas under the Receiver Operating Characteristic (ROC) curves using DSMIV major depression as the criterion was 0.94, 0.89, 0.90, and 0.81, respectively for the CDSS, HAM-D, PANSS-D, and BDI. Liu et al. (2009) studied 101 inpatients meeting the DSM-IV criteria for schizophrenia and DSM-IV major depression criteria. They examined the CDSS, MADRS, HAM-D and PANSS-D. The areas under the receiver operating characteristic curves of the CDSS, HAM-D, MARDS, and PANTSS-D were 0.954, 0.881, 0.828, and 0.897,

respectively.⁴⁷ Thus, two smaller previous studies have examined the CDSS and found higher AUC than that documented here (0.822).

We acknowledge several limitations to the present study. We could not differentiate co-morbid depression with schizophrenia from 'post-psychotic' depression. This shortage in our study might be due to our being bound by the MINI when diagnosing schizophrenia, through which there is no obvious place to differentiate the 'psychotic' from 'post-psychotic' phases. Furthermore, we did not measure phase of illness or positive or negative symptoms in schizophrenia; therefore, no analysis of these subgroups was possible. We acknowledge that tools may perform differently in these subgroups. As previously mentioned we kept an intentionally broad definition of depression without assumption of aetiology or other restrictions. This could be seen as both a study strength and study weakness. A fundamental question not addressed here is whether the symptom profile of DSM-IV is ideal for diagnosing depression in the context of psychosis. This is a difficult question to address and re-defining the criterion standard requires a fundamental objective measure tightly associated with comorbid depression in schizophrenia. To our knowledge, no study has attempted this although some studies have begun to examine if symptoms of depression may differ in schizophrenia with comorbid depression from the classical primary depression.⁴⁸ Moreover, questionnaires applied in the present study were designed primarily for cultures with high-income societies that possibly differ from the Iraqi-Kurdish society. Cross-culturally validated questionnaires might fail to assess possible different phenomenological expressions of disorders. Nevertheless, we found this method the most feasible means of assessment until a future culturally-specific way of assessment can be delivered.

In conclusion, in a sample of 200 individuals with schizophrenia, we found a high prevalence of broadly defined DSM-IV depression and very high rates of symptoms of depression. Comparing five well-known scales for the identification of depression demonstrated that the optimal methods for detection of depression (against non-major depression) were self-report, namely the PHQ9 and PHQ2. We suggest further validation of these findings should be attempted against ICD-10 criteria and in different phases of schizophrenia.

Fig 1. ROC Curve of five depression scales against DSM-IV major depression in schizophrenia

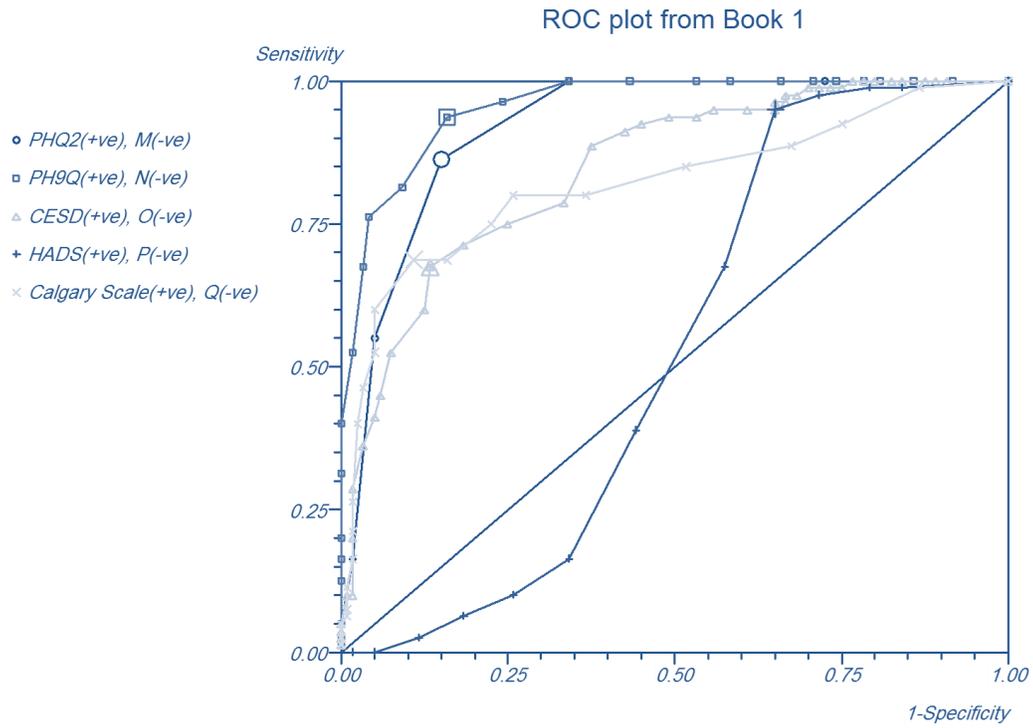


Fig 2. ROC Curve of 5 Depression Scales against DSM-IV major or minor depression in schizophrenia

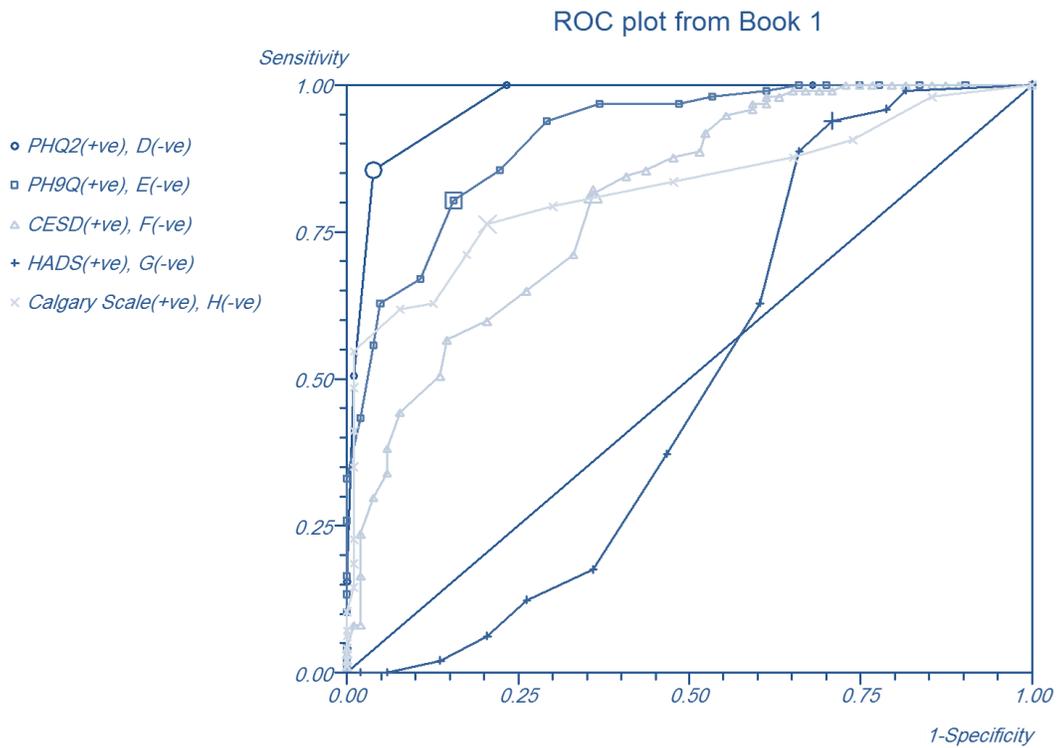


Table 1: Demographics of the sample

	Mean (SD)
Age	31.8 (10.5)
Male	148 (74%)
Unemployed	18 (9%)
Education (secondary or higher)	88 (44%)
Married	23 (11.5%)
Single	137 (68.5%)

Table 2: Correlation matrix for self-report scales

	PHQ2	PH9Q	CESD	HADS	CDSS
PHQ2	1				
PH9Q	0.760582	1			
CESD	0.563995	0.86176	1		
HADS	-0.01439	0.280424	0.454264	1	
CDSS	0.766872	0.734336	0.641409	0.068959	1

Table 3: Summary of accuracy of scales

Test	Optimal Cut	AUC	Sensitivity	Specificity	PPV	NPV	Clinical Utility (+)	Clinical Utility (-)	Overall Correct
Major Depression									
PHQ2 (2 items)	2v3	0.921	86.3%	85.0%	79.3%	90.3%	0.684 [good]	0.767 [good]	85.5%
PHQ9 (9 items)	13v14	0.957	93.8%	84.2%	79.8%	95.3%	0.748 [good]	0.802 [good]	88%
CES-D (20 items)	27v28	0.845	67.5%	86.7%	77.1%	80.0%	0.521 [average]	0.693 [good]	79%
HADS-D (7 items)	3v4	0.525	95.0%	35.0%	49.4%	91.3%	0.469 [poor]	0.320 [poor]	59%
CDSS (9 items)	8v9	0.822	68.8%	89.2%	80.9%	81.1%	0.556 [average]	0.723 [good]	81%
Major or minor									
PHQ2 (2 items)	2v3	0.970	85.6%	96.1%	95.4%	87.6%	0.816 [excellent]	0.842 [excellent]	91%
PHQ9 (9 items)	13v14	0.913	80.4%	84.5%	83.0%	82.1%	0.667 [good]	0.693 [good]	82.5%
CES-D (20 items)	23v24	0.804	81.4%	64.1%	68.1%	78.6%	0.555 [average]	0.503 [average]	72.5%
HADS-D (7 items)	2v3	0.505	93.8%	29.1%	55.5%	83.3%	0.521 [average]	0.243 [poor]	60.5%
CDSS (9 items)	5v6	0.824	76.3%	79.6%	77.9%	78.1%	0.594 [average]	0.622 [average]	78%

AUC- Area under receiver operator characteristic curve. PPV – Positive predictive value. NPV - Negative predictive value. UI - Clinical utility index. The positive utility index (UI+ = sensitivity x PPV) measures rule-in value and the negative utility index (UI - specificity x NPV) measures rule-out value. The following qualitative grades of diagnostic accuracy have been applied to the clinical utility index were ≥ 0.81 : excellent, ≥ 0.64 : good and ≥ 0.49 : average < 0.49 = poor.⁴⁹

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المخلص

الأهداف: هدفت هذه الدراسة لإيجاد مقياس شبه منظم مختصر أو مقياس تسجيل- ذاتي ذو دقة عالية لتشخيص الكآبة حسب مقياس الدليل التشخيصي و الأحصائي الرابع (DSM-IV) لدى مرضى الفصام. الطرق: تمت دراسة 200 مريض مصاب بالفصام في إقليم كردستان العراق. تم الاعتماد على مقياس (ميني) لتشخيص الفصام والكآبة بالإضافة الى الرجوع لمقياس الدليل التشخيصي و الأحصائي الرابع (DSM-IV) لتشخيص الكآبة. تم تقييم أعراض الكآبة من خلال خمس مقاييس معروفة (Patient Health Questionnaire (PHQ-2) و (PHQ-9) و (Hospital Anxiety and Depression Scale (HADS))، و (Centre for Epidemiological Studies Depression (CES-D))، و (Calgary Depression Scale for Schizophrenia (CDSS)) للتقييم تم بواسطة ثلاث أطباء نفسانيين والذين قاسوا ايضا انطباعهم السريري العام. (CGI) حلت النتائج مستخدمين (ROC curve) لتأسيس نقطة الفرق المثالي لتشخيص الكآبة، مع مقارنة الحساسية والنوعية الأحصائيتين بين المقاييس الخمسة. النتائج: 80 (40%) من مرضى الفصام كانوا يعانون من الكآبة العظمى حسب (DSM-IV) و 97 (48.5%) من المرضى كانوا يعانون من الكآبة بشكل عام. 157 (78.5%) من المرضى كانوا يشكون من عرضين من أعراض الكآبة على أقل تقدير. عند مقارنة المقاييس الخمس، أظهرت الدراسة بأن المقياس المثالي لتمييز الكآبة العظمى من بقية انواع الكآبة هو كالتالي-PHQ-2>CDSS>PHQ-9>PHQ-9>PHQ-2>PHQ-9>CDSS. PHQ-9 كان الأدق مع حساسية أحصائية (93.8%) و نوعية أحصائية (84.2%). أما بانسبة الى إيجاد الكآبة بشكل عام، فقد كان أداء المقاييس المثالية كالتالي. PHQ-2>PHQ-9>CDSS: PHQ-2 بحساسية و نوعية أحصائيتين (85.6%) و (96.1%) على التوالي. الأستنتاجات: تتميز مقاييس التسجيل-الذاتي، بشكل محدد مقياسا PHQ-2 و PHQ-9 بأداء جيد لتشخيص الكآبة حسب (DSM-IV) لدى المصابين بالفصام. هذه النتائج تدعو الى تأكيد مصداقياتها عند قياس الكآبة بمقاييس أخرى غير (DSM-IV).

Corresponding author

Dr. Twana Abdulrahman Rahim FIBMSPsych; MBChB

Assistant Professor of Psychiatry, School of Medicine, Faculty of Medical Sciences, University of Sulaimani, Sulaimani, Kurdistan Region, Iraq

Email: rahim.twana@gmail.com

Authors

Dr. Zerak Masud Al-Salihy MRCPsych; MBChB

Specialist Registrar in Old-Age Psychiatry, Norfolk and Suffolk Foundation Trust, Suffolk, UK
Email: zeraksalihy@yahoo.com

Mahmood Qasim Mahmood FIBMSPsych; MBChB

General Adult Psychiatrist, Erbil Mental Hospital, Erbil, Kurdistan Region, Iraq

Dr. Asma Subhi Muhyaldin MBChB

Psychiatric Registrar, Ministry of Health, Erbil, Kurdistan Region, Iraq

Email: assma_aldeen78@yahoo.com

Alex J Mitchell MD; MRCPsych; MBBS

Consultant and Honorary Senior Lecturer in Liaison Psychiatry and Psycho-oncology, University of Leicester, Leicester, UK

The Experience and Severity of Premenstrual Syndrome among a Saudi Sample using a newly Developed Arabic Language Scale

Haifa Mohammad Algahtani, Haitham Ali Jahrami

شيوخ وحدة أعراض متلازمة ما قبل الطمث باستخدام مقياس عربي جديد على شريحة سعودية
هيفاء محمد القحطاني، هيثم علي جهرمي

Abstract

Background: Premenstrual Syndrome (PMS) has been described widely in the medical literature with limited reports on its prevalence and severity in the Arabian Gulf region. **Method:** The present study is a cross-sectional study conducted between 1st July 2013 and 5th August 2013. An Arabic scale was developed according to DSM-IV-TR criteria for PMS with the aim of evaluating PMS experience and severity among a Saudi sample. The scale has 23 items evaluating psychological symptoms, physiological symptoms, and impairment of functioning. The scale was distributed to 350 women in the following cities of Saudi Arabia: Dammam, Dhahran, Safwa, Jeddah, and Riyadh. Only 278 women completed the scale. **Result:** Cronbach alpha coefficients were greater than 0.8 indicating excellent internal consistency. Convergent and discriminant validity were measured using the cross correlation approach and items defining each domain significantly correlated with each other. The majority of the sample had mild to moderate psychological and physical symptoms with some mild impairment in functioning (mainly daily routine and relationships). Psychological symptoms were more prevalent than physical symptoms, but the difference was not major. **Conclusion:** Results indicate that 99% of the sample was found to suffer from PMS symptoms with the majority of women experiencing mild symptoms (48.9%). The rates of moderate and severe PMS were 44.6% and 5.6% respectively.

Key words: Premenstrual Symptoms, Saudi Arabia, Arabic scale

Disclosure: None.

Introduction

Premenstrual Syndrome (PMS) has been described as early as the 11th Century. Trotula of Salerno, a female gynecologist, remarked in *The Diseases of Women*, "There are young women who are relieved when the menses are called forth"¹.

The definition of PMS has evolved overtime; in most reports it is a cluster of cyclical physical and emotional symptoms that occur in the second half (luteal phase) of the menstrual cycle and stops with the start or after a few days of menses (follicular phase)². Some of the common physical and emotional symptoms include: abdominal bloating, headache, breast tenderness, irritability, anxiety, anger and depressed mood^{3,4}.

Epidemiological studies have shown that the prevalence of PMS varies with the methods and measuring instruments used^{5,15}. Studies that survey the broad and general PMS symptoms found the highest prevalence of premenstrual dysphoric women⁶.

As per ICD-10, the presence of one premenstrual symptom, whether physical or emotional, would qualify for a diagnosis of PMS with no emphasis on functional

impairment⁷ while DSM-IV-TR require five out of 11 symptoms resulting in functional impairment to diagnose the more severe form of PMS - premenstrual dysphoric disorder (PMDD)⁸.

Mild premenstrual symptoms are experienced by approximately 80% of women while only 3-8% of women experience PMDD^{3,6}. Initially, PMDD was a research criterion in the DSM-IV-TR appendix. Only recently was it included as a diagnostic category under mood disorder in DSM-5 after an expert panel found enough criteria to satisfy that inclusion¹.

The vast majority of the epidemiological studies of PMS were done on Western subjects. No Arabic language tool existed to date to evaluate the prevalence and severity of PMS in Arab women. This study was therefore planned to develop a comprehensive screening tool to identify women who might suffer from premenstrual disorders and to assess severity and impact of PMS and PMDD in Saudi women.

Method

The present study is a cross-sectional study aimed at assessing the experience and severity of PMS among a

sample of Saudi women using a newly developed Arabic tool. Medline search was utilized to find Arabic PMS measuring tools and look for PMS prevalence studies in the Arabian Gulf. There was no Arabic language scale designed to examine PMS symptoms; therefore the first researcher developed the Arabic Premenstrual Syndrome Scale (A-PMS) to screen and evaluate severity of PMS among Arabic speaking women. Data were collected between 1 July 2013 to 5 August 2013 from a sample of women aged 15 years and older, living in Dammam, Dhahran Safwa, Jeddah and Riyadh, in the Kingdom of Saudi Arabia. We assumed that our participants had regular menstrual cycles, but this was not validated with each participant.

The A-PMS translated the DSM-IV-TR criteria into a four point Likert-like scale with degrees of severity. The A-PMS stated that "...within the past three months or so you have experienced the following premenstrual symptoms one week before menses." Together 23 items were listed, including: depressed mood, feeling helpless or hopeless, feeling guilty, anxiety or worry, mood fluctuation, increased sensitivity toward others, anger, easily tempered, decrease or lack of interest, difficulty concentrating, lethargy, feeling tired or decreased energy, increased appetite, craving for certain foods like chocolate, hypersomnia, insomnia, sense of loss of control, feeling overwhelmed, breast tenderness, breast engorgement or weight gain, headache, muscle or joint or back pain, and acne. Item 23 focused on functional impairment in three subcategories: "relationships," "school or work," and "daily routine." Throughout the questionnaire symptoms were classified as "None", "Mild", "Moderate" and "Severe".

The 23 items were divided into three domains: physical symptoms, psychological symptoms and impairment of functioning. The physical symptoms include items 11 through 15 and 18 through 22; the psychological symptoms include items 1 through 10, 16 and 17. The A-PMS took about 15 to 20 minutes to complete and about five minutes to score and interpret.

A total of 350 copies of the scale were distributed in different geographical locations in the Kingdom of Saudi Arabia. In each region a data collection coordinator was used to facilitate the data collection process. The survey took place during the month of Ramadan so the survey coordinators were instructed to collect about 120 questionnaires from random women in mosques, charity organizations, malls and summer student centers using

one set of procedures for data collection. The purpose of the survey and instructions for its completion and return were also explained using simple language on a cover letter attached to the scale. The cover letter clearly stated that participation was strictly voluntary and, by submitting the returns, participants consented to their data to be used for research purposes. No identification information was collected to ensure confidentiality and anonymity of the participants. The authors designed the present study in accordance with principles listed in the Declaration of Helsinki. The study was approved by the Saudi Aramco Medical Services Organization (SAMSO).

Data Analysis

Questionnaires were coded, entered and analyzed using the Statistical Package for Social Sciences (SPSS 18). Transformation procedure was used to compute the score of each domain using the function of "average score". The research was exploratory in nature; descriptive statistics including mean, standard deviation and frequencies were then calculated.

Reporting reliability is very important for any newly developed tool. Reliability is defined simply as the instrument ability to be coherent with itself. Two main approaches are usually measured in reliability. First, internal consistency: defined as the degree to which responses to individual items in a multiple-item measure are consistent with each other. Second, test-retest reliability: defined as the measurement ability to produce same results over time under the same conditions. In the present research study, internal consistency approach was used by computing the coefficients of items defining on single domain in premenstrual syndrome. The test-retest reliability was not computed for two main reasons: (1) that there is evidence that each menstrual cycle is different from another for the same woman and therefore violating the assumption that "same conditions" or same symptoms are applied; and, (2) asking a large number of women (278 participants) to fill the questionnaire and then complete it again is practically difficult and will result in yielding a very low response rate. Nonetheless, the authors acknowledge that multiple point scales are notorious for poor test-retest reliability and therefore future studies by the research team should standardize the test for test-retest reliability.

Psychometric properties of the A-PMS were also examined as it was a new research tool. The coefficient of reliability or internal consistency was computed using the standard procedure of Cronbach alpha. Alpha coefficients

were computed for the sum of items that comprised a domain. Discriminant validity was judged via cross-correlation approach in measuring validity whereby within each domain each item was correlated with every other item. Chi square test performed to examine the differences between participants' age and severity of symptoms; Chi square test was also performed to examine the differences between participants' age of menarche and severity of symptoms. A third Chi square test was performed to examine the differences between participants' occupation and severity of symptoms.

Results

A total of 278 women completed the A-PMS. Participants were aged between 15 and 54 years of age with a mean

age of 23.40(SD 8.50) years. Age of menarche ranged from 8 to 15 years. The majority of participants (152, 54.7%) were students in high school or university and were single. Results revealed that psychological and physical symptoms were mostly mild to moderate with a mean score of 1.23 (SD 0.65) for the psychological symptoms and a mean score of 1.19 (SD 0.60) for the physical symptoms. Assessment of functional impairment revealed very slight impairment with a mean score of 0.70 (SD 0.70). Table 1 presents the descriptive results of the A-PMS dimensions. Psychological symptoms were slightly more prevalent than physical symptoms. Results of the Cronbach alpha procedure were, respectively, 0.90, 0.80 and 0.80 for the psychological symptoms, physical symptoms and measurement of functional impairment.

Table 1: Descriptive results of the A-PMS, N=278

	Cronbach Alpha	Minimum	Maximum	Mean	Std. Deviation
Psychological symptoms	0.90	0.00	3.00	1.23	0.65
Physical symptoms	0.80	0.00	3.00	1.19	0.60
Assessment of functional impairment	0.80	0.00	3.00	0.70	0.70

The rate of prevalence of each premenstrual symptom (classified according to severity) is shown in detail in Table 2. Approximately 90 percent reported depressed mood (88.5%), feelings of anger (89.6%), lethargy (89.9%), and muscle, joint, and back pain (86.7%) as key

symptoms. These symptoms impaired relationships (48.6%), work or school productivity (37.4%) and daily routine (62.6%). Some missing values were encountered during the analyses, but these were very minimal to be reported.

Table 2: Prevalence rates of premenstrual symptoms according to the level of severity N=278

Symptom N (%)	None	Mild	Moderate	Severe
1. Depressed mood	32 (11.5)	111 (39.9)	105 (37.8)	29 (10.4)
2. Hopelessness	144 (51.8)	85 (30.6)	36 (12.9)	11 (4.0)
3. Guilt feeling	190 (68.3)	55 (19.8)	23 (8.3)	7 (2.5)
4. Anxiety/worry	49 (17.6)	94 (33.8)	91 (32.7)	41 (14.7)
5. Affective lability	81 (29.1)	88 (31.7)	62 (22.3)	41 (14.7)
6. Increased sensitivity	67 (24.1)	85 (30.6)	84 (30.2)	41 (14.7)
7. Feelings of anger	29 (10.4)	86 (30.9)	104 (37.4)	54 (19.4)
8. Easily tempered	64 (23.0)	91 (32.7)	81 (29.1)	38 (13.7)
9. Lack of interest	75 (27.0)	97 (34.9)	74 (26.6)	30 (10.8)
10. Difficulty concentrating	118 (42.4)	108 (38.8)	33 (11.9)	16 (5.8)
11. Lethargy/fatigue/decreased energy	28 (10.1)	91 (32.7)	103 (37.1)	52 (18.7)
12. Increased appetite	129 (46.4)	81 (29.1)	39 (14.0)	25 (9.0)
13. Craving for certain food	90 (32.4)	77 (27.7)	61 (21.9)	45 (16.2)
14. Hypersomnia	93 (33.5)	72 (25.9)	76 (27.3)	33 (11.9)

15. Insomnia	117 (42.1)	82 (29.5)	55 (19.8)	19 (6.8)
16. Loss of control	63 (22.7)	94 (33.8)	80 (28.8)	38 (13.7)
17. Feeling overwhelmed	65 (23.4)	100 (36.0)	73 (26.3)	35 (12.6)
18. Breast tenderness	109 (39.2)	71 (25.5)	49 (17.6)	46 (16.5)
19. Breast engorgement or weight gain	101 (36.3)	63 (22.7)	62 (22.3)	47 (16.9)
20. Headache	98 (35.3)	94 (33.8)	45 (16.2)	37 (13.3)
21. Muscle, joint, or back pain	37 (13.3)	64 (23.0)	89 (32.0)	83 (29.9)
22. Acne	77 (27.7)	96 (34.5)	62 (22.3)	38 (13.7)
23. Symptoms interfering with:				
a. Relationships	143 (51.4)	84 (30.2)	26 (9.4)	11 (4.0)
b. Work or school	174 (62.6)	58 (20.9)	27 (9.7)	6 (2.2)
c. Daily routine	104 (37.4)	90 (32.4)	53 (19.1)	19 (6.8)

We categorized women with premenstrual symptoms into four groups according to symptoms severity: no symptoms, mild symptoms, moderate symptoms and

severe symptoms. Table 3 presents the prevalence of symptom dimensions according to severity.

Table 3: Prevalence rates of premenstrual symptoms according to the level of severity N=278

	No Symptoms	Mild	Moderate	Severe
Psychological symptoms	8 (2.9)	98 (35.3)	141 (50.7)	31(11.2)
Physical symptoms	6 (2.2)	119 (42.8)	125 (45.0)	28 (10.1)
Assessment of functional impairment	91(32.7)	127 (45.7)	51 (18.3)	9 (3.2)
Overall PMS experience	3 (1.1)	136 (48.9)	124 (44.6)	15 (5.4)

According to Table 3, 139 women (50%) reported no or mild symptoms. The remaining 124 (44.6%) reported moderate symptoms and only 15 (5.4%) reported severe symptoms.

Three sets of Chi square tests performed to examine the differences between:

1. Participants' age and severity of symptoms
2. Participants' age of menarche and severity of symptoms
3. Participants' occupation and severity of symptoms.

The severities of symptoms were not different among groups when tested according to the above variable.

Discussion

The objective of the present study was to evaluate the experience and severity of PMS symptoms among a sample of Saudi women using a newly designed Arabic language tool. The Arabic Premenstrual Syndrome scale (A-PMS) translates the DSM-IV-TR criteria into a rating scale with degrees of severity. The A-PMS lists 23 items

divided into three domains; psychological; physical and impairment of functioning. A score of 0 was given to symptoms rated none, score of 1 to symptoms rated mild, score of 2 to symptoms rated moderate and 3 to symptoms rated severe. A total of 139 women (50%) reported no or mild symptoms. The remaining 124 women (44.6%) reported moderate symptoms and 15 women (5.4%) reported severe symptoms. Among the psychological symptoms, the scores were highest for depressed mood, anxiety and worry, and lack of interest while for physical symptoms the lethargy/fatigue score was the highest followed by muscle and joint pain. Women with severe symptoms experienced impairment in activity of daily living, relationship, study and work.

Our results are in accordance with the majority of PMS prevalence studies. One particular study has developed a premenstrual symptom screening tool according to DSM-IV criteria and the results show mild PMS in 65%, moderate in 26% and PMDD in 5.9%^{5,15}. Another Saudi study used a self-administered questionnaire to examine the prevalence and predictors of PMS among college-age Saudi women, and the prevalence of mild PMS was 60%,

while moderate and severe were 40%⁹. This study did not specify the cutoff point for moderate versus severe.

The above results are in contrast to a Turkish study that used Premenstrual Tension Syndrome Scale that contained 44 items (PMSS) and reported moderate to severe PMS in 79% of their participants with physical symptoms scoring higher in relation to psychological symptoms¹⁰. This difference could be related to inclusion of more physical items in their scale in addition to cultural variation in reporting of symptoms.

Results of retrospective and self-report studies have shown higher rates, in general, of PMS in comparison to prospective study⁹ yet an observational prospective study done on medical students in Pakistan, using a daily record of severity of symptoms, has shown similar results to retrospective studies; with mild PMS in 59.5% of participants, moderate in 29.2%, severe in 11.2% and PMDD in 5.8%¹¹. Similar results were shown in an Iranian study that used a translated version of premenstrual symptoms screening tool¹².

Only 5.6% of our sample reported severe symptoms of PMS leading to some impairment of their functioning, while the prevalence of severe PMS in other studies has ranged between 1.2 to 12.9 %^{11,14}. As we stated earlier, this variation is in light of different methodologies, samples studied and instrumentation implemented.

To diagnose PMDD, one should satisfy the criteria stated in DSM-IV with the presence of five PMS symptoms experienced in the luteal phase of most menstrual cycles over the past year; confirmed by prospective daily charting in two symptomatic cycles, causing disturbance to daily functioning, and not a result of other psychiatric conditions. Prospective charting of symptoms in at least two consecutive cycles has shown to give more accurate indication of severity. With this in mind we cannot assume that those who report severe PMS in our study suffer from PMDD.

This study has a few limitations. The major limitation was that we evaluated PMS by retrospective reports. In the retrospective design, women are likely to recall only their last experience. Another limitation of this study is the absence of an assessment of possible concurrent physical or psychiatric illnesses that might have interfered with the results. Also variables like parity and use of contraceptive that might affect the severity of symptoms were not included. Finally, the small sample size combined with

sampling could be debated for bias in the findings, results are therefore neither population-representative nor generalizable; nonetheless, the results of this study can be considered as preliminary findings for future research. We suggest that data gathering for future research should include larger sample sizes.

Conclusion

The A-PMS scale was sensitive enough to produce results similar to published literature.

Results indicate that 99% of the sample was found to suffer from PMS symptoms. Psychological and physical symptoms were equally presented with no major functional impairment. As a research tool, the scale showed high internal consistency and high validity properties. The current research developed the A-PMS for the screening of premenstrual symptoms of Arabic speaking women. This fast, simple and cost-effective scale is an effective tool that will contribute to future research of PMS in the Arab world.

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الملخص

خلفية الدراسة: تم وصف متلازمة ما قبل الطمث بشكل واسع في الدراسات الطبية إلا أن هناك عدد محدود من التقارير عن شيوخ وحدة أعراضها في منطقة الخليج العربي. **الطريقة:** اعتمدت هذه الدراسة الاسترجاعية على اعداد مقياس باللغة العربية مستمد من الدليل التشخيصي التصنيفي الرابع للطب النفسي. يهدف هذا المقياس الى تقييم مدى انتشار وحدة أعراض متلازمة ما قبل الطمث على شريحة سعودية. يحتوي المقياس على 23 فقرة مقسمة الى ثلاثة أقسام رئيسة، أعراض نفسية وأعراض جسمانية والخلل الوظيفي الذي قد ينتج عن هذه الأعراض. تم توزيع المقياس في العاشر من يوليو عام 2013 على 350 امرأة في كل من مدينة الدمام والظهران وصفوه بالمنطقة الشرقية ومدينة جدة بالمنطقة الغربية ومدينة الرياض في المنطقة الوسطى من المملكة العربية السعودية، وقد تم إكمال التقييم من قبل 278 امرأة في اول أغسطس 2013. **النتائج:** تشير معامل كرونباش الفا الى نتيجة تفوق الـ 0.8 في الثلاث الأقسام الرئيسية مما يعني درجة ثبات عالية. تم التحقق من مصداقية الاستبيان باستخدام طريقة جاسكي حيث تم احتساب درجة الارتباط بين جميع الاسئلة التي تنمي لبند معين، اشارت النتائج لدرجة ثبات عالية. معظم الشريحة تعاني من أعراض جسمانية ونفسية بسيطة الى متوسطة مع اضطرابات وظيفية بسيطة خصوصاً في الروتين اليومي والعلاقات. على الرغم من الأعراض النفسية كانت أكثر شيوعاً بالمقارنة مع الأعراض الجسمانية إلا أن الفارق كان بسيطاً. **خاتمة:** تشير النتائج الى انه 99% من النساء في العينة يعانون من متلازمة ما قبل الطمث. غالبية النساء (48.9%) تعاني من أعراض بسيطة. تم رصد شيوخ الأعراض المتوسطة بنسبة 44.6% والأعراض الشديدة بنسبة 5.6%.

Corresponding Author

Dr. Haifa Mohammad Algahtani, Consultant Psychiatrist and Cognitive Therapist, Acting Head of Psychiatry Services Unit, Saudi Aramco Medical Organization, ARAMCO (Previous affiliation) Email: ksa_cbt@yahoo.com.

New affiliation: Consultant Psychiatrist and Clinical Lecturer at Arabian Gulf University, Manama, Kingdom of Bahrain. P.O. Box 22979. Email: haifamsg@agu.edu.bh

Author

Haitham Ali Jahrami, Ph.D.

Head of Rehabilitation Services, Psychiatric Hospital, Manama, Bahrain

PO Box 5128, Manama, Kingdom of Bahrain, Email: HJahrami@health.gov.bh

مقياس التوتر الذي يسبق الطمث (الدوره الشهرية)
A-PMSS

تاريخ اليوم:
العمر: المستوى التعليمي: المهنة: متى كانت اخر دورة:

في أي يوم من الدورة أنت حالياً، الرجاء وضع دائرة على الرقم المناسب:

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16

يحتوي التقييم التالي على بعض الاعراض النفسية والجسمانية التي قد تصاحب الدوره الشهرية, عند إجابتك على الأسئلة التاليه حاولي التركيز على فترة الأسبوع أو الأسبوعين التي سبقت دورتك الشهرية خلال الأشهر القليلة الماضية (3-4 شهور):

#	بعض الاعراض النفسية والجسمانية التي قد تصاحب الدوره الشهرية	0	1	2	3
	لم أعاني منها أبدا	أحيانا بشكل بسيط	في اغلب الأحيان بشكل ملحوظ	أعاني منها قبل كل دوره بشكل عائق جدا	
1	الشعور بالضيق أو الحزن				
2	الشعور باليأس/فقدان الأمل				
3	الشعور بالذنب				
4	الشعور بالقلق والتوتر				
5	تقلبات في المزاج (بكاء بشكل مفاجئ)				
6	حساسية زائدة بخصوص الآخرين				
7	الشعور بالغضب				
8	سهولة في التشاجر مع الآخرين				
9	نقص أو انعدام الرغبة في عمل نشاطات مهمه(كممارسة الهوايات والدراسة أو لقاء الأصدقاء)				
10	صعوبة في التركيز				
11	الشعور بالتعب والخمول أو قلة في النشاط				
12	زيادة الشهية والأكل بشراهة				
13	الشعور برغبة قوية في تناول أطعمه معينه كالمشوكولا والمواالح				
14	زيادة في مدة النوم أو صعوبة في الاستيقاظ				
15	صعوبة في الخلود إلى النوم أو الاستمرار في النوم				
16	الشعور بفقدان السيطرة وسرعة الانفعال				
17	الشعور بعدم القدرة على التحمل				
18	الام في الثديين				
19	انتفاخ الثديين أو الشعور بثقل وزيادة في الوزن				
20	الشعور بصداع				
21	الام في العضلات والمفاصل أو أسفل الظهر				
22	ظهور حب الشباب				
23	هل أثرت أي من الإعراض التي بالأعلى على أي من التالي: 1. علاقتك بالآخرين 2. تحصيلك الدراسي/العملي 3. روتينك اليومي				

Depression and Burnout among Residents

Khalid Abdul-Moez Mohammed, Essam Gaber Ali, Ismail Mohammed Youssef,

Magda Taha Fahmy, Wafaa El-lethy Haggag

الإكتئاب والإحترق النفسي بين الأطباء المقيمين

خالد عبد المعز محمد، عصام جابر علي، اسماعيل محمد يوسف، ماجدة طه فهمي، وفاء الليثي حجاج

Abstract

Objective: To determine the relationship between depression and burnout among physicians and whether depression and burnout were identical. **Method:** Cross-sectional study using an anonymous handled survey to Suez Canal University Hospital residents. Beck Depression Inventory-II and Maslach Burnout Inventory were used to measure Depression and Burnout, respectively. **Results:** Among 84 (64.6%) responding residents, statistically significant relations were found between depression and burnout. A significant positive correlation was found between depression and both emotional exhaustion and depersonalization. A negative correlation was found between depression and personal accomplishment. Burnout, unlike depression, is not related to gender, marital status or work hours the physician works. Both depression and burnout predict one another. **Conclusion:** Depression and burnout are two different problems that are closely related among physicians.

Key terms: Residents, Beck Depression Inventory-II, Maslach Burnout Inventory

Declaration of interest: None

Introduction and Rational

According to Maslach and colleagues¹, burnout is a syndrome defined by the three principal components of emotional exhaustion, depersonalization, and diminished feelings of personal accomplishment.

Earlier studies on physicians have reported a burnout rate of 30% to 40%². Accumulating evidence suggests that the components of burnout may be common among practicing physicians with 46% to 80% reporting moderate to high levels of emotional exhaustion, 22% to 93% reporting moderate to high levels of depersonalization, and 16% to 79% reporting low to moderate levels of personal achievement³. Studies of medical residents have yielded similar results⁴.

True clinical depression is a mood disorder in which feelings of sadness, loss, anger, or frustration interfere with everyday life for an extended period of time⁵. Falkum⁶ found that there were high correlations between emotional exhaustion and depression. Shanafelt and colleagues⁷ reported that 51% and 31% of burned-out residents had a positive result on a depression screen and self-reported major depression, respectively, versus 29% and 11% of residents who were not burned out.

According to the findings of West and colleagues⁸, self-perceived errors are significantly associated with

depression as well as burnout among internal medicine residents.

Masuko and colleagues⁹ suggested that burnout is closely related to depression but simultaneously has its own factors and that burnout is not a subtype of the depressive disorder.

From the above, it appeared that complex interactions between burnout and depression had yet to be described and understood.

The studied sample in the present study does not have any unique characteristics that differ from any other residency program studied elsewhere, as residents in this study work in settings typical for any other university-based training programs in other countries. However, residents in this sample of Egyptian young physicians are believed to be different regarding their cultural and social backgrounds. Therefore, a study of the interactions between burnout and depression among Egyptian physicians is of practical and scientific importance.

Research Questions

In light of the above introduction, the following question was formulated:

1. Are burnout and depression identical phenomena?

Hypotheses

Hypotheses deal with the expected results of a study. Hypotheses are generally based upon a scientific theory, allowing for both prediction and testability^{10,11}. The hypotheses tested in this study are:

(H₀₁) Burnout and depression are identical phenomena.

(H_{a1}) Burnout and depression are not identical (different) phenomena.

Subjects and Methods

Type of the study:

This is a comparative cross-sectional study.

Place of study:

The study was held in Suez Canal University Hospital in Ismailia.

Sampling and sample size:

** Target population: resident physicians in Suez Canal University Hospital.

** Sample type: simple random sample; where sample members were randomly selected from resident physicians.

** Sample size:

The sample size was determined using the following equation¹²:

$$S = [Z^{\alpha/2} / \Delta]^2 * P (1-P)$$

Where: -

Z^{α/2} (confidence level) =1.96

Δ (width of confidence interval) =0.05

P (prevalence of burnout among physicians¹³) = 33%

S (sample size) =340

As the population was known and was small, finite population correction was calculated as follows¹⁴:

$$n = S / [1 + (S - 1) / N]$$

Where: -

N (finite population size) =180

n (adjusted sample size) =118

A drop out of 10% was expected, so the sample size became:

$$118 + (118 * 10/100) \approx 130$$

Measurement instruments:

To achieve the objectives of this study, a questionnaire was used; formed of three parts:

1. Personal data (age; gender; marital status) and average number of working-hours per week.
2. Beck Depression Inventory-II (BDI-II)¹⁵.
3. Maslach Burnout Inventory (MBI)¹⁶.

Procedure:

Each physician was handled a three-part questionnaire and given a one-week period to complete it. The order of presentation of the BDI-II and MBI was counterbalanced to minimize any potential order effect.

After the end of the one-week period, the physician was considered as “non-respondent” if the questionnaire was not returned. Any physician who's BDI-II suggested a psychiatric disorder was formally interviewed by the researcher and the diagnosis was confirmed by two independent psychiatric consultants; with Medical Doctor Degree in psychiatry for at least 10 years.

Scoring and interpretation of results:

1- Beck Depression Inventory-II

The cutoffs used¹⁵:

- 0-13: minimal depression;
- 14-19: mild depression;
- 20-28: moderate depression; and
- 29-63: severe depression.

2- Maslach Burnout Inventory (MBI):

The MBI is designed to assess the three aspects of burnout syndrome. Each aspect is measured by a separate subscale. Burnout is conceptualized as a continuous variable, ranging from low to average to high degrees of experienced feeling. A participant was considered to meet the study criteria for burnout if he or she got a “high” score on at least two of the three dimensions of MBI.

Pilot study

Inconsistencies of the intermediate questionnaire were modified on the basis of a pilot study that included 20 physicians. The intermediate questionnaire was administered to 20 physicians, who had never seen the questionnaire before, for pilot-testing. Each of these 20 physicians after filling up the questionnaire themselves was then interviewed for any difficulty encountered

during the filling up of the questionnaire. Any inconsistencies were taken into account and suggestions were incorporated into the second intermediate questionnaire to form the final questionnaire.

The study was held and data collected during the year 2012.

Results

Out of 130 residents, 84 completed the questionnaires (response rate of 64.6%). The respondent group was such that most were males (54.8%), single (76.2%), and the

group’s average work-hours per week was 84.12 hours (SD=30.46), with a large range (30-144) of work-hours per week. Out of the studied group, 36 residents (42.8%) had moderate-to-severe depression.

Out of the studied group, 64 residents (76%) were burned-out. Considering each domain of burnout separately, high levels of burnout affected a majority of the studied residents; being most prevalent for emotional exhaustion, followed by depersonalization and finally "lack of" personal accomplishment (Table 1).

Table 1: Distribution of studied population according to burnout level in different domains (N = 84)

Burnout Domains	Burnout level						Total
	Low		Average		High		
	No.	%	No.	%	No.	%	
EE •	4	4.8	12	14.3	68	81.0	84
DP •	8	9.5	22	26.2	54	64.3	84
PA •	14	16.7	26	31.0	44	52.4	84

Relation between gender and study variables

Female residents were significantly different from their male colleagues regarding severity of depression. The ratio of (minimal-to-mild: moderate-to-severe)

depression was found to be about 2:1 among males and about 1:1 among females. These ratios indicated higher distribution of more severe depression among female residents (Table 2).

Table 2: Relation between gender and depression “Beck score” among studied population (N =84)

Depression Beck Score	Gender				p-value
	Male (n = 46)		Female (n = 38)		
	No.	%	No.	%	
Minimal	28	60.9	6	15.8	< 0.001 *
Mild	2	4.3	12	31.6	
Moderate	14	30.4	14	36.8	
Severe	2	4.3	6	15.8	

* Statistically significant p < 0.05
Fisher’s exact test

The relation between gender and burnout, as well as each of its domains, was statistically insignificant. Burnout affected both genders indifferently.

Relation between marital status and study variables

Married and single residents differed significantly regarding the severity of depression. All (100%) of severely depressed participants were single while 60% of the married group showed minimal-to-mild depression (Table 3).

Table 3: Relation between marital status and depression “Beck score” among studied population (N =84)

Depression Beck Score	Marital status				p-value
	Single (n = 64)		Married (n = 20)		
	No.	%	No.	%	
Minimal	30	46.9	4	20.0	0.003 *
Mild	6	9.4	8	40.0	
Moderate	20	31.2	8	40.0	
Severe	8	12.5	0	0	
* Statistically significant p < 0.05 Fisher’s exact test					

The relation between marital status and burnout, as well as each of its domains, was statistically insignificant. Burnout affected single and married residents indifferently.

Relation between work hours/week and study variables

Neither depression nor burnout was found to correlate with work hours. Both depression and burnout affected the physicians no matter what work schedule they had.

Relation between depression and burnout

Burned-out residents were significantly different from the normal group regarding depression (Table 4).

Table 4: Relation between depression and burnout among studied population (N =84)

Severity of Depression	Burnout				Total	p-value
	Yes (n = 64)		No (n = 20)			
	No.	%	No.	%		
Minimal	16	47.1	18	52.9	34	< 0.001*
Mild	12	85.7	2	14.3	14	
Moderate	28	100.0	0	0	28	
Severe	8	100.0	0	0	8	
* Statistically significant at p < 0.05 Fisher’s exact test						

A total of 100% of the moderately-to-severely depressed residents were in the burnout group. Minimally depressed residents were 14 times less likely to get

burned-out (OR 0.07) while moderately depressed residents were 32 times more likely to have burnout (Table 5). A strong association between burnout and depression severity was found in the study.

Table 5: Strength of association between burnout and depression among studied population (N =84)

Level of Depression	Odds Ratio of Burnout	95% CI	p-value
Minimal ●	0.07	0.02 – 0.25	< 0.001*
Mild ●	2.08	0.42 – 10.19	0.368
Moderate ●	32.01	1.86 – 552.29	0.017 *
Severe ●	6.17	0.34 – 111.73	0.218
* Statistically significant at p < 0.05			

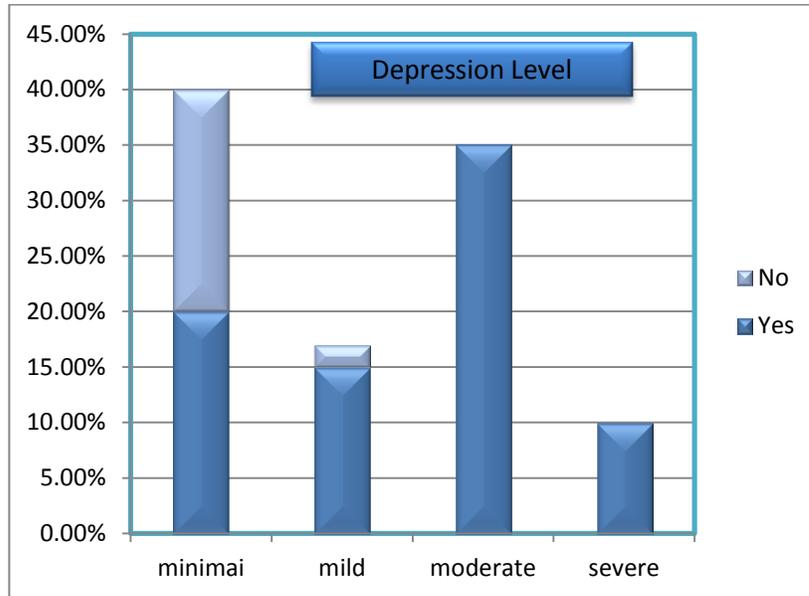
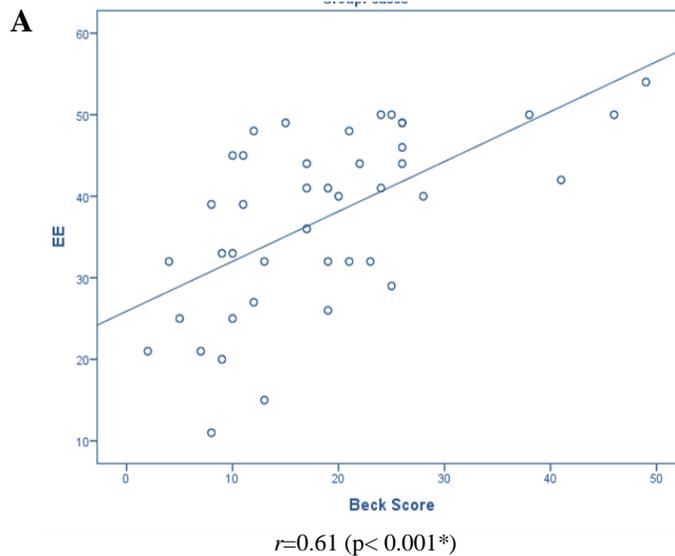


Figure 1: Distribution of burnout according to depression level among studied population (N=84)

The prevalence of burnout increased among the residents as their severity of depression increased (Figure 1).

According to Tabachnick and Fidell¹⁷, coefficients more than 0.30 are considered meaningful. A significantly positive correlation was found between emotional

exhaustion and severity of depression ($r=0.61$; $p < 0.001$) (Figure 2-A). The more severe the depression (indicated by higher Beck scores) the more severe the emotional exhaustion the resident had. The relationship between emotional exhaustion and depression may be considered meaningful as it is > 0.30 ¹⁷.



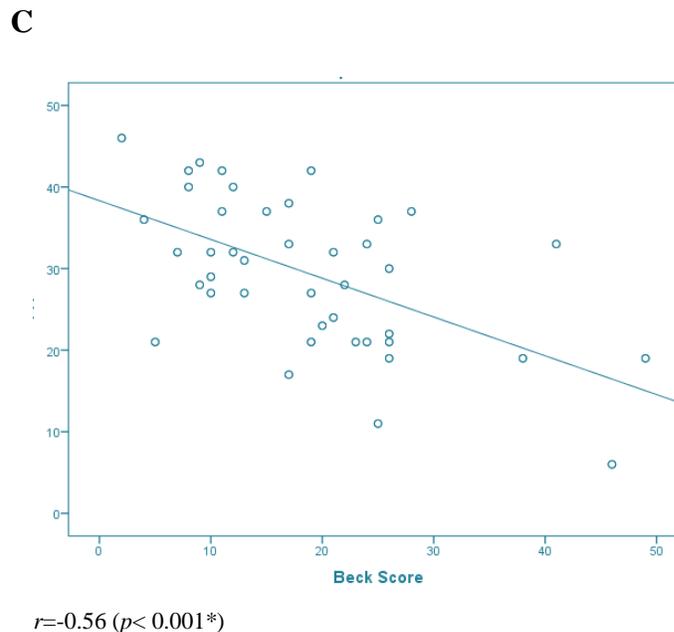
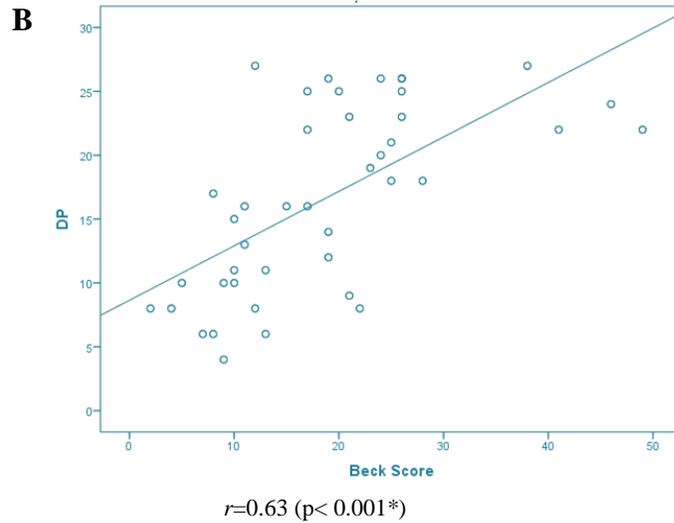


Figure 2: (A, B, C) Scatter plots for correlations between depression Beck score and burnout at different domains (N=84)

A significantly positive correlation was found between depersonalization and severity of depression ($r=0.63$; $p<0.001$) (Figure 2-B). The more severe the depression the higher the depersonalization the resident experienced. The relationship between depersonalization and depression may be considered meaningful as it is $>0.30^{17}$.

A significantly negative correlation was found between personal accomplishment and severity of depression ($r=-0.56$; $p < 0.001$) (Figure 2-C). The more severe the depression the lower the sense of personal

accomplishment the resident had. The relationship between personal accomplishment and depression may be considered meaningful as it is $>0.30^{17}$.

Of the study variables, only depression (Beck score) and female gender were found to significantly predict burnout. Female residents were more than 13 times more likely to have burnout than their male colleagues. On the other hand, for every increase of one point in the Beck score of a resident, the risk of burnout increased about 1.5 times (Table 6).

Table 6: Multiple Logistic Regression Analysis for the predictors of burnout among studied population (N=84)

	<i>B</i>	<i>S.E.</i>	<i>p</i> -value	Adjusted Odds Ratio	95% CI for Adjusted OR	
					Lower	Upper
Gender (Female)	2.611	1.159	0.024*	13.613	1.404	131.973
Marital Status (Married)	-0.937	0.879	0.287	0.392	0.070	2.197
Working hours l week	0.010	0.014	0.486	1.010	0.982	1.039
Beck Score	0.396	0.120	0.001*	1.486	1.174	1.881
Constant	-6.546	5.173	0.206	0.001		

* Statistically significant at p<0.05

Female gender, working hours per week and depersonalization domain of burnout were found to be significant positive predictors of the severity of

depression (Beck score), making of them risk factors for depression (Table 7).

Table 7: Multiple Linear Regression Analysis for the predictors of depression among studied population (N=84)

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i> -value
	<i>B</i>	<i>S.E.</i>			
Gender (Female)	5.173	1.167	0.242	4.431	<0.001*
Marital Status (Married)	-3.858	1.392	-0.154	-2.772	0.007*
Working hrs/week	0.043	0.021	0.121	2.067	0.042*
EE	0.152	0.081	0.152	1.867	0.066
DP	0.273	0.128	0.183	2.139	0.036*
PA	-0.182	0.106	-0.154	-1.706	0.092
Constant	31.687	5.961		5.316	<0.001*

* Statistically significant at p<0.05

Female residents had five more Beck score points on average compared to their male colleagues.

Married residents had about four fewer Beck score points on average compared to their single colleagues.

Every additional hour of work per week the resident worked was associated with an increase of 0.043 points of the Beck scale on average (in other words, every 24 work hours per week increased the Beck score by about one point).

Every point of the depersonalization domain the resident had was associated with an increase of 0.273 points of the Beck scale on average (every four points of depersonalization domain increased the Beck score by about one point).

Marital status was found to have significant negative effect on severity of depression (Beck score), making it a protective factor against depression.

Discussion
Residents' response rate (64.6%) seemed rather low. However, regarding the high rates of depression and burnout among participants, as shown below, such a rate could be acceptable. Especially so when the response rate in other burnout studies among physicians was as low as 26.7%⁴³. The responding residents in the current study belonged to different specialties.

The mean work-hours per week among the residents was over 80 hours per week (range from 30 to 144). Regulatory attempts at limiting medical resident work hours to an 80-hour limit are running in other countries like the US⁴⁵. In Europe, a nine-year transition period was agreed upon by the European Parliament to limit

working hours to a maximum of 58 hours effective from August 2004 to be reduced further to a maximum of 48 hours per week ultimately⁴⁶. The debate related to the regulation of work hours tends to focus more on costs rather than safety of physicians or patients.

In the present study, the fact that the risk of burnout and depression may differ across individuals is acknowledged. The present study examined the relationship between burnout and depression. Despite the small sample, significant and meaningful relationships for each of the three burnout dimensions and depression scores were found.

Of the study sample, 42.8% suffered from depression using the cutoffs for the Beck's inventory¹⁵ with a considerably high mean score. The rate was high in comparison to most other literature. The political turmoil, exposure of residents to increased violence due to lack of security beside the chronic stressors on physicians (low salaries, excessive work, need for studying) may all contribute to such a high rate at the time of the study. If the non-respondents in the present study were taken into consideration (46 physicians), the prevalence may have ranged from 27.7% (if all were not depressed) to 63.1 % (if all were). Erdur et al.¹⁸ found the mean depression score was 10.6 and the prevalence of depression was 15.1%; both lower than what the present study has found. The prevalence of depression in UK doctors is between 10 and 20%¹⁹. One review of psychiatric illness in medical trainees described a prevalence of 15% to 46%²⁰.

Of the study sample, 76% suffered from burnout using the criteria of scoring "high" in at least two of the three dimensions of burnout. If the non-respondents in the present study were taken into consideration (46 physicians), the prevalence may have ranged from 49.2% (if all were not burned out) to 84.6 % (if all were). Residents were also the most affected group in the study held in Al-Mansoura University Hospital as well⁴². Such a high rate is not an exception actually. Shanafelt et al.⁷ found that burnout was very common among residents in all years of residency training: More than 75% of respondents in the study met the criteria for burnout. Martini et al.⁴⁴ also found that first-year residents had significantly high rates of burnout (77.3%).

In a study on Saudi physicians, 29.5% of respondents reported high emotional exhaustion, 15.7% high depersonalization and 19.7% low personal

accomplishment. Egyptian residents had more severe results on both emotional exhaustion and depersonalization⁴⁷. In Kuwait⁴⁸, 63.2% had high emotional exhaustion, 65.3% high depersonalization and 61.1% low personal accomplishment. Again, Egyptian physicians suffered more emotional exhaustion and depersonalization and less lack of personal accomplishment. It might be suggested that the pattern of burnout in Egypt differs from that in the Gulf region.

Discussion on the relation between the burnout domains and depression

Symptoms of burnout are often considered to be job-related and situation specific^{16,21} whereas depressive symptoms may be viewed as more generalized and free of contexts²². Nonetheless, during residency, burnout and depression usually coexist and overlap²³.

In the present study; significant association between burnout and depression was found; a finding that agrees with previous research^{7, 24}. The relationship between burnout and depression was found to be bidirectional, with all the moderately-to-severely depressed residents being among the burned-out group while those not depressed were 14 times less likely to be burned-out. Ahola and Honkonen²⁵ indicated such a relationship in their work as well.

The current study investigated the association between burnout domains and depression, and the results revealed that a strong and meaningful correlation exists between depression and all domains of burnout, which is in parallel to reports in the literature^{26, 28}. Even though physicians have greater awareness about depression diagnosis and treatment, physicians are often unwilling or unable to seek help²⁹.

Most of the studies on the relationship between depression and burnout conclude that they are separate nosological entities³⁰ and that there is a correlation between them^{28,31,32}. The findings of the current study were no exception from the above mentioned conclusion. The prevalence of burnout among the residents (76%) was 1.7 times the prevalence of depression (42.8%). Such a finding indicated that the present study measured two different problems with two different magnitudes. It found that severe depression was not significantly associated with burnout, which indicated that burnout and depression were not mutually inclusive phenomena or always combined. A finding that agrees with a previous study by Iacovides et al.³³, which suggested that

participants that suffer from the burnout syndrome do not manifest depressive symptomatology most of the time. However, Iacovides et al.³³ also suggested that younger participants with burnout have higher percentage of 'mild' depression than 'absent' depression, a result that was shown by the current study along the range of severity of depression.

The current study found that the ratio of depressed females was about 1:1 while for males it was almost 1:2, which indicated that depression was associated with female gender. On the other hand, gender showed no association with burnout or any of its domains. A finding that, besides being in parallel with previous research,³⁴ pointed to separation between the two phenomena.

The present study found that depression and marital status were significantly related with married residents less depressed than their single colleagues. It might be suggested that marriage protected against severe depression though still a burden. On the other hand, this study found no association between burnout and marital status - a result that agreed with some previous literature^{35,36} and was contradicted by some other research. In terms of marital status, Maslach et al.¹ found that singles, especially men, are more exposed to burnout than married individuals. However, Russell et al.³⁷ reported that married employees' job burnout is reported higher than single ones. The absence of a consistent relation between marital status and both burnout and depression indicated their distinction from each other.

In the current study, depression and burnout were found to have different predictors. While more work hours predicted more depression, being married predicted less depression. None of those factors predicted burnout, which shared a common predictor with depression; i.e. female gender. Physician gender and age were not strong independent predictors of burnout³⁸.

Predictors of burnout may differ across nations. In Turkey³⁹; the most significant and common predictors of all burnout dimensions were the number of vacations at individual level, number of shifts per month and public ownership of healthcare facilities. In a Finnish study⁴⁰, specialty seemed to play a major role. The highest burnout scores were noted in general practitioners and non-specialists working in health centers. This was attributed to heavy patient loads, long hours, and problems of professional identity. The situation was also the same for physicians in USA⁴³.

Interestingly, both burnout (depersonalization) and depression predicted one another.

Conclusion

Both depression and burnout are prevalent among young physicians. Although all are exposed to the same work environment not all of them become depressed or burned-out, which signals that physicians are not negative receivers of stressors. They react to them in unique and variable ways. It is not necessary for depression and burnout to be accompanied, as they proved to be - albeit related - two sincerely different phenomena. However, both depression and burnout predict each other among physicians. Burnout seems to be less selective than depression; no matter what gender, marital status or work hours the physician has, burnout has no exceptions.

Limitations

All studies are subject to limitations. Due to the limitations, caution should be used in generalizing the results of the study to the general population.

A major limitation of the study was the small sample size. The anonymous nature of the questionnaires is a potential source of selection bias that is difficult to assess. For example, residents with higher levels of burnout may have been less inclined to take on the additional task of completing the questionnaires. Also, despite the promise of anonymity, residents may have been anxious about providing answers critical of the training programs.

A limitation inherent in correlational research designs that utilize surveys for data collection is the respondents' self-reported information on the survey⁴¹. Consequently, respondents may report what they think rather than what they do⁴¹. In turn, the participants' responses may be a truthful representation of their thoughts and attitudes, but may not be an accurate representation of their actions and circumstances.

The authors used the cut-off points of Maslach et al.¹⁶ and Beck et al.¹⁵, which need not be the same for Egyptians, as both tools have not been standardized on an Egyptian population. There is a limited amount of literature on the Egyptian physicians' context on the relation between depression and burnout.

There was no separate control group, but the use of non-burned-out and minimally-to-mildly depressed

physicians as the comparison group meant that both groups experienced similar conditions, giving a high degree of matching.

Future Implications

Applying similar research nation-wide to involve more resident physicians, and using a longitudinal study design, should create a huge data base. Such data can be used to correlate specialty and the chances for depression or burnout and personality. A personality assessment during the house officer year may simply predict which specialties are least or most associated with depression or burnout for each physician. Thus, a physician may get an idea of what is awaiting for him/her as a consultatory tool. Even more, such assessment can be used by certain emotionally loaded training programs for prior selection of trainees.

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المخلص

مقدمة: من الاضطرابات النفسية الشائعة بين الأطباء الاكتئاب ومتلازمة "الاحتراق النفسي". تظل طبيعة العلاقة بين هاتين الظاهرتين بين الأطباء الشباب ينقصها المزيد من البحث والدراسة. **الأهداف:** هدفت الدراسة إلى تحديد العلاقة بينهما؛ وما إذا كان كل منهما ظاهرتان متطابقتان أم مختلفتان عن بعضهما البعض. **الطريقة:** تمت الدراسة على 84 طبيباً يعملون في المستشفى الجامعي بالإسماعيلية بنسبة استجابة 64.6%. وشملت استمارة الاستبيان: البيانات الشخصية، استبيان "بيك" للاكتئاب - 2، استبيان "ماسلاش" للاحتراق النفسي. تكونت عينة البحث بشكل متوازن من الأطباء الذكور (54.8%) والإناث؛ وكان نحو 76.2% من غير المتزوجين، كما وجد أن متوسط عدد ساعات العمل يزيد عن 84 ساعة في الأسبوع. **النتائج:** أظهرت الدراسة أن 42.8% من الأطباء يعانون من اكتئاب متوسط إلى شديد. في حين معدل انتشار الاحتراق النفسي يصل إلى 76%. وجدت الدراسة أن العلاقة بين الاكتئاب والاحتراق النفسي ذات دلالة احصائية. وإن هناك ارتباطاً طردياً بين الاكتئاب وكل من الانهك العاطفي والغاء الشخصية الانسانية للمريض. وعلى العكس، كان هناك ارتباطاً عكسياً بين الاكتئاب والاحساس بالانجاز الشخصي والكفاءة المهنية. أما بالنسبة لعوامل التنبؤ بالاكتئاب، فقد أظهرت الدراسة أن كون الطبيب أنثى وطول عدد ساعات العمل الأسبوعية ووجود عامل الغاء شخصية المريض يمثل عوامل تزيد من شدة الاكتئاب بشكل ذي دلالة احصائية. وفيما يخص الاحتراق النفسي؛ فإن وجود الاكتئاب وكون الطبيب أنثى يجعل التنبؤ بالاحتراق بشكل ذي دلالة احصائية ممكناً. **ختاماً:** وعليه فإن الاكتئاب والاحتراق النفسي على ما لهما من تشابه ظاهري، فإن لكل منهما معدل انتشار وعوامل تنبؤ مختلفة عن الآخر. ومع ذلك نجد أن كلا منهما يتنبأ بحدوث الآخر، مما يزيد العبء النفسي على الطبيب.

Corresponding author

Dr. Khalid Abdul-Moez Mohammed, Lecturer of Psychiatry
Faculty of Medicine
Suez Canal University-Egypt

Authors

Dr. Khalid Abdul-Moez Mohammed, Lecturer of Psychiatry
Faculty of Medicine
Suez Canal University-Egypt

Dr. Essam Gaber Ali M. Sc. of Psychiatry
Faculty of Medicine
Suez Canal University-Egypt

Dr. Ismail Mohammed Youssef, Professor of Psychiatry
Faculty of Medicine
Suez Canal University-Egypt

Professor Magda Taha Fahmy, Department of Psychiatry
Faculty of Medicine
Suez Canal University-Egypt

Professor Wafaa El-lethy Haggag, Department of psychiatry
Faculty of Medicine
Suez Canal University-Egypt

Evaluating the Effect of an Educational Program on Level of Professional Burnout among Family Physicians in the Faculty of Medicine - Suez Canal University

Amany Ali Kotb, Khalid Abd-Elmoez Mohamed, Mohammed Hany Kamel,

Mosleh Abdul Rahman Ismail, Abdulmajeed Ahmed Abdulmajeed

تقييم تأثير برنامج تعليمي على مستوى الاحتراق المهني لدى أطباء الأسرة كلية الطب – جامعة قناة السويس
أماني قطب ، خالد عبد المعز ، محمد هاني ، مصلح عبد الرحمن ، عبد المجيد أحمد

Abstract

Background: The burnout syndrome is characterized by emotional exhaustion, depersonalization, and low personal accomplishment. It is associated with impaired job performance. **Aim:** Evaluate the effect of an educational program on level of professional burnout among family physicians working in family practice centers affiliated to the Faculty of Medicine-Suez Canal University in terms of change in the scores of the three dimensions of burnout. **Participants and method:** A quasi-experimental study design with pre-post assessment was used to evaluate the effect of an educational program on level of professional burnout among family physicians working in family practice centers affiliated to the Faculty of Medicine, Suez Canal University. A total of 31 physicians were assessed. The program was implemented from March to April 2012. The evaluation of burnout was via the Maslach Burnout Inventory (MBI). **Results:** Among family physicians more than (80%) were females; more than 60% were married (67.7%) and had one or two children (64.5%); and over a third (38.7%) consulted 10 to 20 patients/day. The mean number of working hours/week for the government was 33.6 ± 12.9 hour. Prevalence of burnout after six months of the intervention program decreased from (41.9%) to (32.3%) with absence of significant change in the mean scores of emotional exhaustion and depersonalization before and after intervention. There was a decrease in the percent of physicians scoring high in emotional exhaustion and depersonalization domain from 48.4%, 67.7% respectively to 38.7%, 61.3%. More than 80% of the studied family physicians were satisfied with the intervention program. **Conclusion:** There was a considerable prevalence of burnout among family physicians. Person directed approach has limited effect in reduction of professional burnout.

Keywords: Family physicians, emotional exhaustion, intervention program

Declaration of interest: None

Introduction

The burnout syndrome is characterized by losing enthusiasm for work (emotional exhaustion), treating people as if they were objects (depersonalization), and having a sense that work is no longer meaningful (low personal accomplishment) and it refers to a negative consequence of chronic work stress¹. Burnout as a syndrome is present in many individuals under constant pressure. Physicians in particular are frequently overloaded with the demands of caring for sick patients². Studies have shown that primary care physician report alarming levels of professional and personal distress as up to 60% of practicing physicians report symptoms of burnout³.

Burnout appears to be quite prevalent in both developing and developed countries and probably represents considerable economic, social and psychological costs to employees and employers in these countries. Burnout may also lead to increased alcohol or drug use, which can also impact patient care². Burnout is remarkably stable when studied across time on the same individuals

and the chronic nature of burnout is probably not due to its genetic or personality origins, but rather to work-related characteristics⁴. In Yemen, the burnout rate was reported to be 11.7%⁵. While among Tunisian primary care doctors 33% were found to have suffered from burnout⁶. It is documented that physician burnout has been associated with impaired job performance, poor health and has led to physician error; these errors can in turn contribute to burnout. Dissatisfaction and distress have significant costs not only for physicians and their families but for patients and health care organizations as well².

The consequences of burnout among practicing physicians include not only poorer quality of life and lower quality of patient care, but also a decline in the stability of the physician workforce. It is reported that there has been a major decrease in the percentage of graduates entering careers in primary care in the last 20 years with reasons related to burnout and poor quality of life⁷. This trend, coupled with attrition among currently practicing physicians is likely to have a significant effect

on patient access to primary care services⁸. On the other hand, there is evidence that the well-being of physicians is related to patient satisfaction, which is a key outcome variable tracked by most organizations. The satisfaction of physicians in an organization will enhance recruitment and retention of staff, saving the enormous cost of staff and physician turnover⁹.

Physician well-being prevents burnout and the less frequent, but significant problem of physician impairment¹⁰. Furthermore, attention to well-being promotes patient safety and reduces the probability of errors thereby diminishing the threat of malpractice litigation¹¹. Now health system administrators and managers are beginning to study the extent of physician burnout in their settings as a precursor to recommend meaningful organizational changes¹².

Early intervention programs could ensure that practicing physicians in trouble get help in time before their problems interfere with care of patients and give rise to medical errors^{13,14}. The studies showed that counseling programs designed to prevent burnout enhance mental health and quality of life and motivate doctors to reflect on and acknowledge their own situation and personal needs. This might subsequently lead them to seek medical treatment, reduce working hours and reconsider personal and professional priorities¹⁵. The doctors participating in these counseling programs reported a high degree of satisfaction with the intervention, the association between satisfaction and outcome is fairly high¹⁶.

Methods

Participants: The present study is a quasi-experimental intervention design with pre-post assessment to evaluate the effect of an educational program on level of professional burnout among family physicians working in family practice centers affiliated to the Faculty of Medicine, Suez Canal University (FOM/SCU). The pre-post intervention study involved 31 family physicians. A physician was excluded if he/she refused to share in the study or follow regulations; were known to have any psychiatric disorders or received any training program related to burnout in the last six months.

Sample: Sampling process was conducted in two stages: Stage¹: A comprehensive sample for the family physicians in the family practice centers affiliated to FOM/SCU who accepted to participate in the study. Stage²: A pilot study was carried out on seven family

physicians (not included in the final result) to test the clarity, applicability of the study tools, modify the educational program and make it more appropriate to our culture; identify the difficulties that may be faced during the application, as well as the time of the program was estimated during this pilot study. The necessary modifications according to the results obtained were done with the most important being the incorporation of a discussion session after each interactive lecture into discuss the homework.

Methods: The method used for the present study is described in five phases (below).

(1) Preparatory phase: all physicians working in family practice centers affiliated with FOM/SCU were invited to participate in the study through a series of mailed, in addition to personal, interviews with follow-up telephone calls from the researcher.

(2) Questionnaire preparation phase: demographic data, some work characteristics of the participating physicians and level of reported burnout as measured via the Maslach Burnout Inventory (MBI), which is the most commonly used questionnaire to measure burnout in research studies. The MBI human services survey is a self-administered, 22-item questionnaire developed to measure burnout in human services workers and is regarded to be the "gold standard" in measuring burnout. The MBI items are rated on a scale from 0 to 6 (0 = never, 1 = a few times per year, 2 = once a month, 3 = a few times per month, 4 = once a week, 5 = a few times per week, and 6 = every day). It is designed to assess three primary dimensions of burnout: losing enthusiasm for work (emotional exhaustion) and contain the first nine questions in the appendix; having a sense that work is no longer meaningful (low personal accomplishment), which consists of the second eight questions; and the third domain (depersonalization) that includes a third section comprised of five questions.

In a previous study, the factorial validity of the MBI was examined using exploratory and confirmatory factor analysis. Results showed that the Arabic version¹⁷ of the MBI is a valid and reliable instrument for measuring professional burnout. Thus, the Arabic version was used in the present study as it could be easily understood and could allow for more accurate answers. Burnout dimensions were categorized in Table 1:

Table 1: Burnout dimensions

Level of burnout	Emotional exhaustion	Depersonalization	Low personal accomplishment
Low	≤16	≤6	≤31
Moderate	17-26	7-12	32-38
High	≥27	≥13	≥39

A participant was considered to meet the study criteria for burnout if he or she gained a "high" score on at least two of the three dimensions of the MBI (using the cut off points for level of burnout according to the standard version)⁷.

(3) Preparation of the training program: Originally designed in Syria, some modifications to its implementation were necessary in the present study following results of the pilot. The program relies on a set of cognitive behavioral skills, including control of ideas, improving the language of the internal dialogue, and round table and group discussions to increase awareness of the negative ideas and their impact on negative behavior while attempting to replace negative self-appraisals with positive ones. The program also involved training physicians on relaxation techniques, which can be applied rapidly to alleviate their experience of burnout¹⁸. The program consisted of seven sessions. Each session lasted 60 minutes and was divided in two parts: an interactive lecture via a 15 minute power point presentation and a 45 minute discussion.

(4) Implementation phase: The training program was provided only for those family physicians who agreed to participate in the present study. A total of 33 family physicians completed the study; two were dropped from the study. Participants were divided into three groups according to the convenience of their work. The same session was presented three times in the same week for the three groups and any who missed a session were able to attend with another group. The program implementation took about two months with a follow-up to measure the degree of satisfaction with educational the program. Participants were reassessed for their level of professional burnout at the six month point, which marked the end of the program.

(5) Final phase: This phase involved data management and statistical analysis.

Statistical analysis

The obtained data were coded, entered using Statistical Package of Social Science (SPSS version 20) for analysis

of the results. Level of significance selected for the present study was 95% ($p < 0.05$, CI=95%). Tests of significance included unpaired Student's *t*-test for continuous data and Chi-square test for categorical data. Fisher's exact test was carried out when the cells had expected counts of < 5 . The Mann-Whitney rank sum test was used for skewed data and Wilcoxon's rank test for paired samples. Dichotomous variables were analyzed with McNemar's test. Multiple logistic regressions were used to identify predictors of burnout. Data were presented in tables and graphs according to the type of variables.

Results

Table 2 (below) demonstrates sociodemographic characteristics of the studied physicians. More than 80% of family physicians were females; 67.7% were married and 64.5% had one or two children. Of the studied family physicians 93.5% stated they were non-smokers; 64.5% were residents/demonstrators. A majority 83.9% did not practice regular exercise with 90/3% reporting no definite chronic diseases and a 77.4% reporting no social problems. More than three quarters (77.4%) had no perceived financial problem.

Considering the relationship of burnout and sociodemographic characteristics of the physicians studied, there was a statistically significant relationship between burnout and both marital status and qualification of the studied physicians with prevalence of burnout higher in married physicians (59.6%) than in those who were single (39.7%). Prevalence of burnout also was higher in assistant lecturers (63.3%) compared to in residents/demonstrators (42.6%).

There was an inverse statistically significant relationship between burnout and practicing exercise/smoking of the studied physicians with the prevalence of burnout being lower in physicians who exercised (22%) compared to (61.5%) in those who did not practice exercise. With regard to smoking, the prevalence of burnout was higher in non-smokers (60.1%) when compared to smokers (18.2%). There was no statistically significant relationship between burnout and age, gender, number of

children, having definite chronic disease, perceived financial or social problems.

With regard to the work circumstances of those studied, more than one third of family physicians (38.7%) reported seeing 10-20 patients/day. About sixty percent (61.3%) practice in group most of time and the majority (90.3%) had no private work. The mean number of working hours/week for the government was 33.6 ± 12.9 hour.

Table 3 (below) shows prevalence of burnout after six months of the intervention program decreased from 41.9% to 32.3% with no statistically significant difference.

Table 4 (below) represents absence of significant change in the mean of emotional exhaustion and

depersonalization scores before and after intervention by six months; however, this was not the case with low personal accomplishment scores which continued to increase after intervention from a score of 6 increasing to 8.

Table 5 (below) shows a decrease in the percentage of physicians scoring high in emotional exhaustion and depersonalization domain from 48.4% and 67.7% respectively to 38.7 and 61.3%.

Figure 1 (below) shows distribution of family physicians according to their satisfaction with the intervention program. More than 80% of the studied family physicians were satisfied (the score $\geq 60\%$) with the intervention program.

Table 2: Sociodemographic characteristics of the studied physicians

Sociodemographic characteristics		Family physicians (n=31)	
		No.	%
Age group	< 30	24	77.4
	30 - 35	6	19.4
	> 35	1	3.2
	Mean \pm SD	28.68 \pm 3.44	
	Range	24 – 37	
Gender	Male	6	19.4
	Female	25	80.6
Marital status	Married	21	67.7
	Widow	1	3.2
	Divorced/separated	1	3.2
	Single	8	25.8
Number of children	1 - 2	20	64.5
	3 - 5	2	6.5
Smoking	Yes	2	6.5
	No	29	93.5
Highest level of education	Bachelor's degree	20	64.5
	Master's degree	11	35.5
Have a favorite	Yes	18	58.1
	No	13	41.9
Practice exercise	Yes	5	16.1
	No	26	83.9
Family member have chronic disease	Yes	22	71.0
	No	9	29.0
Having chronic disease	Yes	3	9.7
	No	28	90.3
Having perceived financial problem	Yes	7	22.6
	No	24	77.4
Having social problem	Yes	5	16.1
	No	26	83.9

Table 3: Pre-post intervention changes in the prevalence of burnout among family physicians

Time of assessment	Burnout among family physicians (n = 31)				Significance test (p-value)
	No		Yes		
	No.	%	No.	%	
Pre-intervention	18	58.1	13	41.9	McNemar Test (0.607)
Six months after intervention	21	67.7	10	32.3	

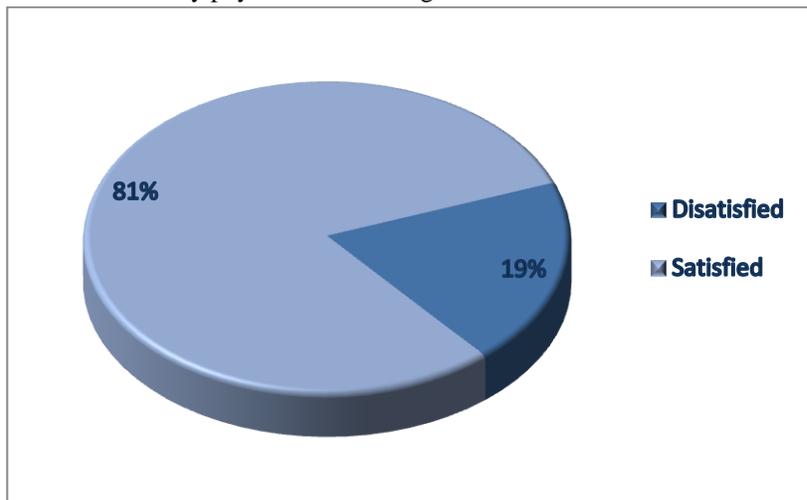
Table 4: Pre-post intervention changes in Maslach burnout inventory subscales score among family physicians

Burnout Domains	Pre- intervention	Six months after intervention	Significance test (p-value)
	(Mean ± SD)		
Emotional exhaustion	26.00 ± 11.65	26.42 ± 12.69	Wilcoxon Signed Rank Test (0.992)
Depersonalization	27.36 ± 9.31	27.03 ± 10.53	Wilcoxon Signed Rank Test (0.113)
Low personal accomplishment	6.16 ± 5.48	8.77 ± 7.62	Wilcoxon Signed Rank Test (0.829)

Table 5: Pre-post intervention changes in burnout inventory domains among family physicians

Burnout Domains		Pre-intervention		Six months after intervention		Significance test (p-value)
		No.	%	No.	%	
Emotional exhaustion	Low/Moderate	16	51.6	19	61.3	McNemar Test (0.629)
	High	15	48.4	12	38.7	
Depersonalization	Low/Moderate	26	83.9	22	71.0	McNemar Test (0.424)
	High	5	16.1	9	29.0	
Low personal accomplishment	Low/Moderate	10	32.3	12	38.7	McNemar Test (0.754)
	High	21	67.7	19	61.3	

Figure 1: Distribution of family physicians according to their satisfaction with the intervention program



Discussion

The present study showed that the prevalence of burnout among family physicians was 41.94 %, which was higher than that found by others; for example, in Yemen it was 11.7%⁵ whereas among Tunisian primary care doctors there 33% reported suffering from burnout⁶. However, Linzer¹⁸ and Bergner¹⁹, estimated that 22% of physicians in the USA, 27% of physicians in Great Britain and 20% of physicians in Germany suffer from burnout.

Another study conducted by Linzer²⁰ involved 422 United States family practitioners and general internists in ambulatory clinics from 2001 to 2005 looking at the primary care working conditions and adverse stress reactions, e.g. stress and burnout, and noted that 26.5% reported burnout.

The reasons for such high levels of burnout among the study participants are likely to be complex reflecting both the effect of the environment in which doctors' work and personal characteristics of the doctors themselves. Differences in burnout rates across countries can be attributed to the job–demands-resources model, which conceptualizes burnout as a consequence of the imbalance between job pressure and available resources. Healthcare professionals working in areas known for low burnout rates have lower occupational pressure and more resources; also differences in economic and political circumstances among countries may play a major role. The previously mentioned view was emphasized by the results of other studies^{21,22,23}.

In the present study, there was a statistically significant relationship between burnout and marital status, especially in the low personal accomplishment domain. Prevalence of burnout was higher for married physicians (59.6%) than those who were single (39.7%). The risk of developing burnout is estimated to be five times greater among married women; this may be explained in that the time married female physicians are able to spend at work is limited. Physicians appear to gain their sense of personal accomplishment from the number of hours they work - the greater the number of hours the higher the sense of accomplishment. Such an attitude might reflect the way in which physicians are being evaluated and the major aim they seek. Although physicians complain about their long working hours, they consider the number of working hours as the main evaluative tool for their accomplishment. This is not all good though because it is the quality; not the quantity, that matters in medical practice.

Regarding the effect of the educational intervention program, the prevalence of burnout after six months of the intervention decreased from 41.9% to 32.3% with no significant changes in the mean score of burnout domains; the mean score of EE was 26.42 after intervention compared with 26.00 before intervention. These study findings coincide with Roby²⁴ who provided brief intervention of six hours across three weeks for a group of 24 graduates from a psychology school. The current study findings were inconsistent with many studies like that by Krasner²⁵ who recruited 70 primary care physicians in a Continuing Medical Education course (2007- 2008). The course included mindfulness meditation, self-awareness exercises, narratives about meaningful clinical experiences, appreciative interviews, didactic material and discussion. It consisted of an intensive eight week phase (2.5h/wk, 7-hour retreat) followed by 10-month maintenance phase (2.5h/mo) and resulted in significant decrease in all burnout domains; the mean score of emotional exhaustion was decreased from 26.8 to 20.0, depersonalization from 8.4 to 5.9 and personal accomplishment.

The relationships between coping, work-related stress, e.g. feeling overloaded, feeling poorly managed, dealing with blame and anger, dealing with change in clinical practice, encountering difficulties in relationship with self and others, dealing with patient suffering and having managerial responsibilities and burnout after a counselling intervention for help-seeking were addressed by Isaksson Ro²⁶ in a cohort study that included 227 physicians who attended a counselling intervention for burnout at the Resource Centre Villa Sana in 2003-2005. Interventions were based on an integrative approach incorporating psychodynamic, cognitive and educational theories and the physicians chose to participate in one of two different interventions. Daily lectures, group discussions, and physical activity were offered as well as an individual counselling session, this intervention resulted in significant reduction in the levels of emotional exhaustion; the mean score was decreased from 3.0 to 2.4²⁶.

The above mentioned results was evident in other studies like that done by Higgins²⁷ who concluded that a cognitive behavioral program that included rational emotive therapy resulted in a lower level of emotional exhaustion compared with a non-treatment control group, Corcoran and Bryce²⁸ who showed positive effects of a four-week interpersonal skills training on levels of emotional exhaustion, and Schaufeli²⁹ who observed a decrease in levels of emotional exhaustion, but not in the

other burnout components for community nurses one month after they had followed a three-day burnout workshop.

The discrepancies might be related to the current study methodology which didn't involve variable methods that enhanced active involvement by the study participants, follow-up as the other studies. The intervention program in the current study relied on a person-directed approach so results were different from the studies that used organization-directed approach in reduction of burnout, such as that by Adams³⁰ and Walster³¹ who concluded that the effectiveness of burnout prevention at work depends on certain management measures.

The results of the current study also disagreed with other studies that used both person and organization-directed prevention measures, which resulted in significant positive changes in burnout and concluded that the only way to truly prevent burnout is through a combination of organizational change and education for the individual as burnout occurs when there is a disconnect between the organization and the individual³². The study findings were inconsistent with the results of systematic review for 25 primary intervention studies, 17 of them (68%) were person-directed interventions, two (8%) were organization-directed and six (24%) were a combination of both interventions types showing that 80% of all programs led to a reduction in burnout. Person-directed interventions reduced burnout in the short term (six months or less) while a combination of both person- and organization-directed interventions had longer lasting positive effects (12 months and over). In all cases, positive intervention effects diminished in the course of time³³.

The researcher found the results of the current study indicate that cognitive-behavioral strategies at the individual level have a potential for success, but is more complicated at the organizational level where reducing or removing work-related stressors have been shown to decrease burnout. This opinion was confirmed through burnout experts who stated that, in order to reduce occupational burnout, a strategy of combining both organizational and individual level activities may be the most beneficial approach to reduce the three main symptoms of burnout³⁴.

Despite the fact that little effect was demonstrated by the intervention program, this study had some limitations that are worth mentioning to assist in further research. First, the intervention didn't address the organizational

factor that constituted the most common causes of burnout among study participants. Another limitation was related to the structure of the intervention; the short period of the program (the person- directed approach); limited methods that encourage the participants to cope with stress, to think in a positive manner during exposure to stressful situations or group intervention and other clinical material, e.g. self- awareness exercises, narratives about meaningful clinical experiences, appreciative interviewers, didactic material or role plays. A further methodological limitation related to small sample size, self -selection of the participants, using the cut-off points for level of burnout according to MBI standard version⁷ limited location lastly the adherence of participants was not satisfactory due to work load and limited time. These limitations affected the ability to generalize the results on all family physicians.

Conclusion

There was a considerable prevalence of burnout among physicians working in clinical departments of the Suez Canal University hospital and in family physicians working in family practice centers affiliated with the Faculty of Medicine - Suez Canal University. Person-directed approach against burnout, which was used in the present study, had a limited effect in reduction of professional burnout.

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المخلص

تهدف الدراسة الى تحسين الأداء الوظيفي للأطباء العاملين في مراكز طب الأسرة التابعة لقسم الأسرة في جامعة قناة السويس وبالتالي تحسين الرعاية المقدمة للمرضى . تم تحديد مستوى الاحتراق النفسي باستخدام مقياس ماسلاش للاحتراق المهني على 171 طبيباً في قسم طب الأسرة بعد الموافقة . تم تقديم برنامج معرفي سلوكي تعليمي للخفض من اعراض الاحتراق النفسي على 31 من الاطباء المشاركين ثم تقييم الاحتراق النفسي بعد ستة أشهر. وقد اظهرت النتائج انخفاض معدل انتشار الاحتراق النفسي بين الاطباء المشاركين في البرنامج بعد ستة أشهر مع عدم وجود فروق أدوات دلالة احصائية في حين أن أكثر من ثمانين بالمائة من الاطباء المشاركون بالبرنامج كانوا راضين عن البرنامج.

Correspondent Author

Dr. Khaled Abd El Moez, Lecturer of Psychiatry Faculty of Medicine - Suez Canal University, email: naomsal2012@hotmail.com, Ismailia, Egypt.

Authors

Dr. Amany Ali Kotb, Lecturer of Family Medicine, Faculty of Medicine - Suez Canal University, Egypt.

Dr. Mohammed Hany Kamel, Assistant Professor of Family Medicine, Faculty of Medicine - Suez Canal University, Egypt.

Dr. Mosleh Abdul Rahman Ismail, Assistant Professor of Family Medicine, Faculty of Medicine - Suez Canal University, Egypt.

Professor Abdulmajeed Ahmed Abdulmajeed, Family Medicine, Faculty of Medicine - Suez Canal University, Egypt.

The Relationship between Mothers' Mental Health and the Prevalence of Depression and Anxiety of Preschool Children after the War on Gaza Strip

Abdel Aziz Mousa Thabet, Ashraf Ahmad Abu-Khusah, Panos Vostanis

العلاقة بين الصحة النفسية للأمهات وانتشار الإكتئاب والقلق بين الأطفال ما قبل المدرسة في قطاع غزة بعد الحرب

عبد العزيز ثابت، أشرف ابو خوصة، بانوس فوستانس

Abstract

Objective: The present study investigated the prevalence of depression and anxiety among preschool children and relationship to mothers' mental health. **Participants:** A sample of 380 preschool children aged 4-6 years with their mothers were selected from 24 kindergartens in the Gaza Strip. **Method:** Children were assessed by maternal reports for depression and anxiety; their mothers were assessed using the General Health Questionnaire-28. **Results:** Results showed the mean anxiety score for preschool children was 27.46, generalized anxiety mean was 3.42, social anxiety was 3.94, obsessive compulsive disorder was 4.92, physical injury fear was 10.47, and separation anxiety 4.94. No gender differences in showing anxiety symptoms except for physical injury fear which was greater in girls than boys. Anxiety problems were greater in children with low family income; no significant differences between the means of preschoolers' anxiety problems according to type of residence or number of siblings. Mean depression was 33.10, mean lack of vitality and worthlessness was 12.98, mean loneliness and anxiety was 9.03, and mean anger and aggression 7.37. There were significant differences in depression for children with low family income although no significant differences according to type of residence. For mothers, mean total GHQ scale was 6.54, somatic symptoms was 1.80; mean anxiety and insomnia was 2.18, mean social dysfunction was 1.26, and severe depression was 1. Using 4/5 cut-off points, cases of mothers according to GHQ-28 were 185 (53.6%) and 160 (46.3%) were not cases. **Conclusion:** There was a significant positive correlation between mental health problems of mothers and subscales and depression and anxiety and subscales of their children.

Key words: Preschool children anxiety, depression, Mothers' mental health

Declaration of interest: None

Introduction

Anxiety disorders are among the most common and functionally impairing mental health disorders to occur in childhood and adolescence. An epidemiologic study with preschoolers included a sample of 307 children, ages 2 to 5 years recruited through pediatric practices in semirural North Carolina, drawn from Durham and the surrounding rural area¹. Egger and Angold reported a 2.4%, prevalence rate for separation anxiety, 6.5% for generalized anxiety and 2.1%, for depression. Others reported point-prevalence estimates averaging 2.5 to 5% in community samples². A study in Trondheim, Norway of all children born between 2003 and 2004, who attended a regular community health check-up for 4-year-olds, found the prevalence of anxiety disorders was 1.5%³.

Recently, in a two-stage study, parents of 339 children aged 4–6 years who came for a medical check-up at three primary care centers in Reykjavik were recruited for assessment of anxiety disorder in their children. Anxiety disorder in the population studied was a reported 5.7%⁴. Depression is one of the psychiatric categories of major interest for both clinicians and researchers. Most of the

epidemiological studies conducted in recent years using standardized methods of data collection based on DSM diagnostic criteria for depressive disorder report prevalence rates of major depression in children ranging from 0.4% to 2.5%⁵. There are only a few reports available on the prevalence of mood disorders in preschool children mainly due to the complexity of diagnosis. Prevalence rates of emotional disorders in children of this age-range were found to be less than 1%, and the prevalence of depression, not otherwise specified, was 0.3%⁶. Moreover, a study of prevalence of ADHD, ODD, depression, and anxiety in 796 children, aged 4 years old, who were recruited from schools and pediatric practices in a diverse, urban area found MDD ranging from zero with the algorithm-based questionnaire to a high of 2.1% with a structured interview; dysthymia rate was with rates below 1%.

However, previous studies have focused mostly on children aged 6 years and older. Although a growing body of data suggested that depression does exist among preschoolers, skepticism remains about whether it is clinically meaningful or increases the later risk of psychiatric conditions, similar to childhood depression,

which is not a developmentally transient syndrome but rather shows chronicity and/or recurrence. The results underscore the clinical and public health importance of identification of depression as early as preschool. Depression in preschool-aged children does not always look the same as depression in older children and adults, which is one reason why preschool depression has been largely neglected⁸. In a study of all children born between 2003 and 2004 in Trondheim, Norway, who attended the regular community health check-up for 4-year-olds, the prevalence of depressive disorders was found to be 2.0%³.

A number of studies have consistently found that a mother's mental health (particularly her level of depression) is a strong predictor of mental health problems experienced by her children. The psychological wellbeing of parents had been found to be a major risk factor for child development⁹. In addition, preschool depression may go unnoticed by parents because the symptoms may not be disruptive; these children may not seem obviously sad (as do many depressed adults) and may have periods of normal functioning during the day. A study of Palestinian mothers and their children found that PTSD in children was the best predictor of mothers' psychopathology¹⁰. Other studies had documented the influence of environmental factors, including parenting, on children's behavior and psychosocial functioning¹¹.

The aim of the present study was to investigate the prevalence of depression and anxiety among preschool children and relationship to mothers' mental health and other socioeconomic variables in Gaza Strip after the war on Gaza on 2008-2009.

Methodology

Participants

The study population includes all children in Gaza Strip between the ages 4-6 who were found in 303 kindergartens totaling 31,689 children of whom 15,588 were boys (49.2 %), and 16,101 were girls (50.8 %) with their mothers¹². The study sample consisted of randomly systematic cluster sample of 380 preschool children aged 4-6 years with their mothers. This study sample was selected from 24 kindergartens, 4 kindergartens from and equal number of children from each kindergarten was selected randomly from the registration book (North Gaza, East Gaza, West Gaza, Middle area, Khan Younis, and Rafah). The total number of questionnaires returned were 345, 174 (50.4%) were boys and 171 (49.6%) were girls with response rate of 90.7%.

Instruments

Sociodemographic questionnaire

A questionnaire to be completed by the parents was devised specifically for the present study in order to obtain information about the participants, including gender, age, number of brothers and sisters, birth order, health problems, area of residence, family income, maternal age, maternal education, and maternal occupation.

General Health Questionnaire-28^{13,14,15,16}

Maternal mental health: Ratings based on the General Health Questionnaire (GHQ-28). It covers severe depression and suicidal risk, anxiety and insomnia, social dysfunction, and somatic symptoms (10). Emphasis is on changes in condition so items compare current mental state to the person's normal mental health status.

GHQ-28 scores above the cutoff of 4/5 are considered to be possible psychiatric cases. In a previous study, Cronbach's alpha was 0.91 and test-retest coefficient after six months was 0.90. Validation of GHQ-28 as determined by comparison with the Clinical Interview Schedule yielded a sensitivity of 88.0 percent and specificity of 84.2 percent. This scale had been validated in the Arabic culture and showed reliability and validity^{15,16}. The internal consistency of the scale, calculated using Cronbach's alpha, was $\alpha=0.91$ and split half was 0.88.

Spence Children's Anxiety Scale (SCAS)¹⁷

A preschool version (The Preschool Anxiety Scale) was adapted from the Spence Children's Anxiety Scale (SCAS)¹⁸. The Arabic version used in the current study consisted of 28 statements that describe anxiety of preschool children. It assessed generalized anxiety (1, 4, 8, 14, 28), social phobia (social anxiety) (2, 5, 11, 15, 19, 23), separation anxiety (6, 12, 16, 22, 25), obsessive-compulsive disorder (3, 9, 18, 21, 27), and physical injury fear (7, 10, 13, 17, 20, 24, 26). For each item, parent circles the response that best describes her/his child, e.g. circling 4 if the statement is "very often true", 3 if the statement is "quite often true", 2 if the statement is "sometimes true", 1 if the statement is "seldom true" or if it is "not true at all" circle 0. Parents were encouraged to answer all statements as well as she/he can even if some do not seem to apply to her/his child. In this study we tested the reliability of the SCAS as follows: generalized anxiety (5 items) where the value of alpha = (0.61) and the value of split half = (0.53), social anxiety (6 items) where the value of alpha = (0.68) and

the value of split half = (0.73), OCD (5 items) where the value of alpha = (0.57) and the value of split half = (0.41), physical injury anxiety (6items) where the value of alpha = (0.76) and the value of split half = (0.69), separation anxiety (5 items) where the value of alpha = (0.57) and the value of split half = (0.43).

The Preschool Children Depression Checklist (PCDC)⁶

Depressive symptoms were transformed into 32 questions that cover an array of depressive behaviors in this age range (mood, affects, interaction with peers and with adults, play characteristics, somatic and vegetative disturbances, etc.). The Arabic version of the scale used in the current study consisted of 32 items. Items on the checklist were scored on a severity scale of 0 to 4 (0 = never observed; 1 = rarely observed; 2 = sometimes observed; 3 = often observed; 4 = always observed)⁴. The 32 questions cover an array of depressive behaviors preschool children where lack of vitality and worthlessness (2, 3, 6, 8, 9, 14, 15, 16, 17, 19, 22, 23, 28, 30), loneliness and anxiety (11, 12, 13, 18, 24, 25, 26, 31), while anger and aggression (4, 5, 21, 27, 29). In the current study reliability of the depression scale for preschool children was as follows: lack of vitality and worthlessness (14 items), alpha Chronbach was 0.84 and split half = (0.81), loneliness and anxiety (8 items), alpha Chronbach was 0.66, and split half = (0.56), anger and aggression (5 items) alpha Chronbach was 0.57 and split half = (0.57).

Study procedure

An approval letter was obtained from an authorized ethical committee within the Ministry of Health to allow the researcher to carry out the study. The researchers trained a team of three mental health professionals to help in data collection. The team collected data after meeting with the principal of each of the 24 kindergartens chosen randomly from Gaza Strip. We explained the purpose of the study then we asked them to select randomly from the registration book the number of children already prepared in a list for sampling. The mothers received a written form to sign explaining the study purpose and stressing that the data will be kept with the researchers for scientific research and will not carry any threat or harm to the children or mothers. The mothers were interviewed by researchers and field workers inside the kindergartens and every interview continued for 30 minute. The response rate was (90.7 %).

Statistical analysis

Data was entered by the statistical Package for Social Sciences (SPSS) ver. 18. Descriptive statistics including frequencies for socio-demographic variables, preschool anxiety items, preschool depression items, and for General Health Questionnaire-28 items was used. T-Independent test was used to test gender differences in depression and anxiety. One way ANOVA test was used to study the differences in means of preschoolers' anxiety and depression according to age, family income, and type of residence; also it was used to study the difference in means of mothers' mental health problems according to family income and number of sons. Pearson correlation test was used to demonstrate the relationship between preschool children anxiety and depression scales and mothers' mental health.

Results

Socio-demographic characteristics of the study sample

As shown in Table 1, the total number of questionnaires returned were 345, 174 (50.4%) boys and 171 (49.6%) girls with response rate of 90.7%. Ages ranged from 4-6 years with mean age 5.13 years (SD=0.64). Regarding their place of residence, 21.2% of children were from North Gaza, 33.9% were from Gaza, 13.6% from Middle zone,¹⁹ .1% from Khan Younis, and 12.2% from Rafah. Regarding the number of siblings, 52.5% had less than four, 35.9% had from five to seven and 11.6% had eight or more siblings Regarding mothers' education, 1.4% were illiterate, 3.8% had elementary education, 22.3% primary education, 41.7% had secondary education, 6.7% had diploma, 22.0% had a university degree, and 2.0% had postgraduate education. Regarding mothers job, 91.6% of mothers were housewives, 2.6% were simple workers, and 5.8% were civil employees. For family monthly income 55.1% had family income less than 300 USD, 22.0% had family income ranged between 301-600 USD, 13.9%, had family income ranged between 601-750 USD, and 9.0% had income of 751 USD and more.

Table 1: Socio-demographic characteristics of the study sample (N=345)

Items	No.	%
Gender		
Boys	174	50.4
Girls	171	49.6
Age of children 4-6 years (Mean =5.13, SD = 0.64)		
Number of siblings		
Less than 4	181	52.5
5-7 siblings	124	35.9
More than 8 siblings	40	11.6
Place of residence		
North Gaza	73	21.2
Gaza	117	33.9
Middle zone	47	13.6
Khan Younis	66	19.1
Rafah	42	12.2
Mothers' education		
Illiterate	5	1.4
Elementary	13	3.8
Primary	77	22.3
Secondary	144	41.7
Diploma	23	6.7
University	76	22.0
Postgraduate	7	2.0
Mothers' work		
Housewife	316	91.6
Simple worker	2	2.6
Civil employee	20	5.8
Family monthly income		
Less than 300 USD	190	55.1
301–600 USD	76	22.0
601 - 750 USD	48	13.9
751 USD and more	31	9.0

Children anxiety and depression

Means of preschool anxiety

Table 2 (below) shows that means of total anxiety was 27.46, generalized anxiety 3.42, social anxiety 3.94, obsessive compulsive disorder 4.92, physical injury fear 10.47, separation anxiety 4.94. T independent t-test was done comparing means of anxiety problems according to

gender. The *t*-test results showed that there were no significant gender differences in total anxiety problems and other subscales, but there was a significant difference in means of physical injury fear toward girls (boys mean = 9.68, vs. girls mean = 11.26) ($t = -2.24, p = 0.03$).

Table 2. Means and standard deviations of preschool anxiety scales

Preschool anxiety problems	Mean	SD
Total anxiety scale	27.46	16.63
Generalized anxiety disorder	3.42	3.09
Social anxiety disorder	3.94	3.80
Obsessive compulsive disorder	4.92	3.47
Physical injury fears	10.47	6.53
Separation anxiety	4.94	3.91

Anxiety problems of preschool children and sociodemographic variables

In order to investigate the differences in anxiety and other sociodemographic variables, such as place of

residence, number of siblings, family monthly income a one-way ANOVA test was used to find the differences in which the anxiety and subscales were entered as dependent variable and other socioeconomic variables as

independent variables. Post hoc tests using Bonferroni test showed that there were significant differences between the means of total anxiety problems according to family income for children from families with income less than 300 USD. Results showed that means of total anxiety problems were less in children from families with high family income than the other groups. However, there were no significant differences between the means of preschoolers' anxiety problems according to type of residence or number of siblings.

Means of preschool depression

Table 3 (below) shows that means of total depression scale was 33.10, lack of vitality and worthlessness was 12.98, loneliness and anxiety was 9.03, anger and aggression was 7.37.

Table 3: Means of preschool depression scales

Depression subscales	Mean	SD
Total depression scale	33.10	18.43
Lack of vitality and worthlessness	12.98	8.90
Loneliness and anxiety	9.03	5.27
Anger and aggression	7.37	3.92

In order to investigate gender differences in depression symptoms, an independent *t*-test was performed. The present study showed that mean depression for boys was 34.25 (SD=17.16) and 31.94 for girls (SD=19.62), mean of lack of vitality and worthlessness for boys was 31.74 (SD=8.72) and mean for girls was 12.21 (SD=9.03), mean for loneliness and anxiety for boys was 9.01 (SD=4.85) and for girls was 9.05 (SD=5.67), and mean anger and aggression for boys was 7.67 (SD=3.79) and for girls was 7.07 (SD= 4.03). No statistically significant differences between boys and girls in depression and all subscales.

In order to investigate the differences in depression and other sociodemographic variables, such as place of residence, number of sibling, a one-way ANOVA test was used. Post hoc tests using Bonferroni test showed that there were significant differences between the means of preschoolers' depression problems according to family income for children with family income of less than 300 USD. There were no significant differences between the means of preschoolers' depression problems according to type of residence or number of siblings.

Mothers' Mental Health

Frequency of Mental health problems using General Health Questionnaire-28

Results showed that the most common symptoms were "Been getting edgy and bad-tempered?" 47.2%, "Been feeling run down and out of sorts?" 42.0%; however, the lowest items answered yes were "Found the idea of taking your own life kept coming into your mind?" 0.9% and "Been thinking of yourself as a worthless person?" 7.5%.

Means of mothers' general health

Table 4 (below) shows that mean for total GHQ scale was 6.54, mean somatic symptoms was 1.80, anxiety and insomnia was 2.18, social dysfunction was 1.26, and severe depression was 1. Using 4/5 cut-off points, according GHQ-28 cases of mothers were 185 (53.6%) and 160 (46.4%) were not cases.

Table 4: Means of mothers' general health questionnaire scales

General health subscales	Mean	SD
Total General Health Questionnaire	6.54	6.02
Somatic symptoms	1.80	2.02
Anxiety and insomnia	2.18	2.23
Social dysfunction	1.26	1.53
Severe depression	1	2

Relationship between mothers' mental health and preschool children anxiety

In order to find the relationship between mothers' mental health and preschool children's depression and anxiety, a coefficient correlation test was conducted using the Pearson correlation test. Results showed there were positive correlations between all preschool children anxiety problems and total general health questionnaire and subscale of mothers. Table 5 (below) shows that total health problems of mothers was correlated and total anxiety scale of preschoolers ($r=0.44$, $p<0.001$), generalized anxiety ($r=0.45$, $p<0.001$), social anxiety ($r=0.34$, $p<0.001$), obsessive compulsive disorder ($r=0.27$, $p<0.001$), physical injury fear ($r=0.34$, $p<0.001$), and separation anxiety ($r=0.32$, $p<0.001$). Somatic symptoms scale of mothers was correlated with total anxiety of preschoolers ($r=0.44$, $p< 0.001$), generalized anxiety, ($r=0.45$, $p< 0.001$), social anxiety ($r=0.34$, $p<0.001$), obsessive compulsive disorder ($r=0.27$, $p<0.001$), physical injury fear scales of preschoolers ($r=0.34$, $p< 0.001$), and separation anxiety ($r=0.32$, $p<0.001$). Anxiety and insomnia of mothers were correlated with total anxiety of preschoolers ($r=0.39$, $p<0.001$), generalized anxiety ($r=0.43$, $p<0.001$), social anxiety ($r=0.28$, $p< 0.001$); obsessive compulsive

($r=0.24, p<0.001$), physical injury fear ($r=0.31, p<0.001$), and separation anxiety ($r=0.29, p<0.001$). Social dysfunction scale of mothers and total anxiety scale of preschoolers ($r=0.29, p<0.001$), generalized anxiety ($r=0.26, p<0.001$), social anxiety ($r=0.23, p<0.001$), obsessive compulsive ($r=0.17, p<0.001$), physical injury

fear ($r=0.23, p<0.001$), and separation anxiety scales of preschoolers ($r=0.22, p<0.001$). Severe depression scale of mothers was correlated with total anxiety ($r=0.43, p<0.001$), generalized anxiety ($r=0.42, p<0.001$), social anxiety ($r=0.34, p<0.001$), obsessive compulsive disorder ($r=0.26, p<0.001$), physical injury fear ($r=0.34, p<0.001$), and separation anxiety ($r=0.31, p<0.001$).

Table 5: Correlation between mothers' mental health and preschool anxiety scales

	Total GHQ	Somatic Symptoms	Anxiety and Insomnia	Social Dysfunction	Severe Depression
Total anxiety scale	0.44**	0.44**	0.39**	0.29**	0.43**
Generalized anxiety	0.45**	0.45**	0.43**	0.26**	0.42**
Social anxiety	0.34**	0.34**	0.28**	0.23**	0.34**
Obsessive compulsive disorder	0.27**	0.27**	0.24**	0.17**	0.26**
Physical injury fear	0.34**	0.34**	0.31**	0.23**	0.34**
Separation anxiety	0.32**	0.32**	0.29**	0.22**	0.31**
P ≤ 0.05*, P ≤ 0.01**, P ≤ 0.001***					

Relationship between mothers' mental health and preschool children depression

Table 6 (below) shows that total mothers' mental health problems using GHQ scale and total depression symptoms of preschoolers ($r=.43, p<0.001$); lack of vitality and worthlessness ($r=0.35, p<0.001$), loneliness and anxiety ($r=0.40, p<0.001$), anger and aggression ($r=0.40, p<0.001$). Somatic symptoms of mothers was correlated with total depression symptoms of children ($r=.43, p<0.001$); lack of vitality and worthlessness ($r=0.35, p<0.001$); loneliness and anxiety symptoms of ($r=0.40, p<0.001$); and anger and aggression symptoms of preschoolers ($r=0.40, p<0.001$). Insomnia scale of mothers and total depression symptoms ($r=0.38,$

$p<0.001$), lack of vitality and worthlessness ($r=0.31, p<0.001$); loneliness and anxiety ($r=0.38, p<0.001$); anger and aggression ($r=.34, p<0.001$). Social dysfunction symptoms of mothers was correlated with total depression symptoms of preschoolers ($r=0.31, p<0.001$), lack of vitality and worthlessness ($r=0.25, p<0.001$), loneliness and anxiety ($r=0.27, p<0.001$), social dysfunction anger and aggression symptoms ($r=0.29, p<0.001$). Severe depression of mothers was correlated with total depression symptoms of preschoolers ($r=0.37, p<0.001$), lack of vitality and worthlessness ($r=0.31, p<0.001$), loneliness and anxiety ($r=0.34, p<0.001$), and anger and aggression ($r=0.34, p<0.001$).

Table 6: Correlations between mothers' mental health and preschool depression scales

	Total GHQ	Somatic Symptoms	Anxiety and Insomnia	Social Dysfunction	Severe Depression
Total depression scale	0.43**	0.43**	0.38**	0.31**	0.37**
Lack of vitality and worthlessness	0.35**	0.35**	0.31**	0.25**	0.31**
Loneliness and anxiety	0.40**	0.40**	0.38**	0.27**	0.34**
Anger and aggression	0.40**	0.40**	0.34**	0.29**	0.34**
Note: p ≤ 0.05*, p ≤ 0.01**, p ≤ 0.001***					

Discussion

The current study investigated the relationship between mothers' mental health and depression and anxiety among a sample of preschool children in Gaza Strip after war on Gaza. Results showed that the mean total preschool anxiety scales was 27.46, generalized anxiety was 3.42, social anxiety was 3.94, obsessive compulsive

disorder was 4.92, physical injury fear was 10.47, and separation anxiety was 4.94.

The current study found only significant differences in means of physical injury fear as one of the anxiety problems experienced by girls. This result was consistent with the study which reported no gender differences for generalized anxiety disorder, and separation anxiety

disorder, at any level of impairment⁷. In another study to validate the new version of preschool children scale, the study showed that the only gender difference across the Revised Preschool Anxiety Scale (PAS-R) scales was that girls scored higher than boys on specific fears only according to mothers' reports¹⁹. These data are consistent with other studies that have failed to demonstrate gender differences in anxiety symptoms at the pre-school age¹.

Examination of gender differences also provided an interesting result. No significant differences were found between boys and girls in a large sample of 3 to 5 year olds for the total symptom ratings or any of the factor scores¹⁷. This finding contrasts with much of the literature relating to older children in whom it has been widely concluded that girls manifest higher levels of anxiety and anxiety disorders than boys²⁰. Another study of pre-school Palestinian children in the Gaza Strip, aged 4 to 6 years, found no significant gender differences in total behavioral and emotional problems in preschool²¹.

In contrast with older children, who often present with post-traumatic stress and depressive disorders, pre-school children may respond through increased nonspecific behavioral problems and symptoms of underlying anxiety, such as those reported by parents in the present study. The high prevalence rates of certain symptoms; for example, the increased frequency of temper tantrums, fears, overactivity, attention seeking and poor concentration might be associated with exposure to trauma²². In this area of war and conflict, boys are more exposed to trauma and physical injury is represented as heroism especially when the injury is war-related. Even children were proud of injury, but girls had more fears due to concerns about their appearance.

The results of the current study also showed significant differences between the means of preschoolers' anxiety problems according to family income for children from families with incomes of less than 300 USD. We attributed this result to the inability of low income families in Gaza Strip to meet the basic needs of their children, which probably forces some parents to use violent ways of disciplining children as an expression of their failure to meet their needs. Therefore, this parental rearing could increase the anxiety and fear experienced by preschoolers.

Our study was consistent with studies which found low income parents reporting higher levels of frustration and aggravation with their children resulting in those children being more likely to have poor verbal development as

well as exhibiting higher levels of distractibility and hostility²³. The results of the current study showed no significant differences between the means of preschoolers' anxiety problems according to type of residence. This result was expected because the Gaza Strip's entire population shares similar levels of high poverty and also socioeconomic characteristics.

For depression, the current study showed that the mean of total preschool depression scale was 33.10, for lack of vitality and worthlessness 12.98, loneliness and anxiety 9.03, anger and aggression 7.37. It is obvious that the most common depression symptoms were lack of vitality and worthlessness. According to the researchers' points of view, lack of vitality and worthlessness is the core of depression problems and the researchers hypothesized that the lack of vitality and worthlessness would be high in preschool children in Gaza Strip because of the war and conflict situation to which Palestinian children are exposed and the increased poverty level in Gaza Strip due to siege and conflict, which has escalated in the last five years. Poverty deprives children of many basic needs leaving them to feel as though they are not like other children and this outlook is often what leads to feelings of inferiority.

The current study also showed no significant differences between boys and girls regarding depression of preschool children. The result was consistent with a study in Spain which found the depression ratio between boys and girls was 1:1 24. Findings were also consistent with research that found no gender differences for major depressive disorder and dysthymia at any level of impairment⁷. A further study found no significant differences according to gender⁸. We postulated that such non-significant gender differences may be due to the actual situation in Gaza Strip whereby both boys and girls face the same political, social, and family situation which is a major source of their distress. As in anxiety, poverty is one of the risk factors in developing depression. The current study demonstrated that depression problems were greater among children from families with incomes lower than 300 USD. Other studies²⁵ have reported that children growing up in poor families are likely to have adverse home environments or face other challenges which would continue to affect their development even if family income were to increase substantially.

The results of the current study demonstrate that the cases of mothers were 185 (53.6%). High mental health problems in mothers could be attributed to continuous

stress and trauma inflicted on Palestinian mothers due to siege and blockade and after war on Gaza in 2009. Prevalence of mental health problems in mothers was higher than in that found in a study from Southern Norway, which found that clinically important psychological distress was reported by 29% of mothers²⁶. The rate was also higher in a study that examined the relationship between psychological distress in mothers and separation anxiety disorder symptoms in children in which 35% of mothers were cases⁹. The results of the current study also showed mental health problems were greater in mothers where monthly family income was lower than 300 USD.

Finally, the results of the current study demonstrated that there were significant positive relationships between mothers' mental health problems and preschool children anxiety and depression in Gaza Strip. Our results were consistent with most studies that evaluated the relationship between the mental health problems of mothers and their children, which demonstrated how parental mental-health problems can compromise the parenting abilities of mothers and fathers while also representing a threat to their children's adjustment²⁷. It has also been found that children's emotional and behavioral problems were strongly linked with maternal perceptions of attachment insecurity²⁸. Similarly there was evidence that a significant and positive relationship existed between maternal anxiety and separation anxiety disorder in children⁹. A study of mothers and teachers evaluated children at age five and found an association between antenatal maternal anxiety and children's behavior rated by their mothers¹⁴. Similarly, a study of 324 preschool children, aged 4 to 6 years, showed a significant association between total mothers mental health problems and total preschool children mental health problems⁹.

Study limitations

A possible limitation of the current study was the use of screening measures rather than extensive diagnostic or structured interview. Also, maternal reports as indicators of children's behavior will not necessarily detect emotional problems in preschool children.

Conclusion

The current study contributes to the existing literature by highlighting the importance of the maternal role in preschoolers' mental health in Gaza Strip because it showed how mothers mental health and both anxiety and depression of preschoolers are positively correlated. It

showed that anxiety and depression of preschoolers are positively correlated too. Further, it showed that preschool children, whether they were boys or girls, reported the same depressive symptoms with the only clear difference being that physical injury fear was a symptom of anxiety where the results demonstrated that physical injury fear in girls was greater than in boys. Also the current study highlighted the way in which low income adversely influences the mental health of both mothers and preschoolers with an emphasis on how mothers' mental health was also adversely influenced if their sons' mental health was affected.

Recommendations

In light of the current study results, the following recommendations are made within the context of the Gaza Strip: Mothers should communicate effectively in front of their children and should avoid revealing their bad feelings at the risk of these being transferred to their children. Also, mothers should promote active participation with their preschool children at home by talking with them since this has the potential to improve the relationship between mothers and their children, which would, in turn, promote better mental health for children. Training for preschool kindergarten staff in the early detection of emotional problems experienced by preschoolers would be to the children's benefit because early intervention during the preschool period has been found to be effective in ameliorating other childhood disorders. Kindergartens should reinforce activities that children prefer for recreation and to improve their mental health through activities, such as leisure trips, educational trips, and play.

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المخلص

هدفت هذه الدراسة إلى معرفة نسبة إنتشار اعراض الاكتئاب والقلق بين الأطفال في سن قبل المدرسة و علاقتة بالصحة النفسية للأم الفلسطينية في قطاع غزة بعد الحرب . لعمل هذه الدراسة تم اختيار عينة عشوائية من 380 من الامهات , والأطفال في سن رياض الاطفال الذين تتراوح أعمارهم بين 4-6 سنوات من 24 روضة في قطاع غزة ، وقد تم تقييم الاطفال والامهات من خلال المقابلة الشخصية في رياض الاطفال باستخدام مقياسي القلق والاكتئاب للأطفال الذي تم تعينته من قبل الامهات عن الاطفال، و مقياس الصحة العامة النفسية للامهات. أظهرت نتائج الدراسة أن متوسط القلق عند الأطفال كان 27.46، أما بالنسبة لمحاور القلق الأخرى فقد كان متوسط القلق العام 3.43، ومتوسط القلق الاجتماعي 3.94 ، ومتوسط الوسواس القهري 4.92 ، ومتوسط الخوف من الإصابات الجسدية 10.47، و قلق الانفصال عن الأم . 4.94. هذه الدراسة لم تظهر أي فروق ذات دلالة أحصائية بين الأولاد و البنات في أعراض القلق ما عدا أعراض الخوف من الاصابات الجسدية الذي كان أكثر لدى الفتيات. أظهرت الدراسة فروق في معدلات القلق لدى الأطفال من الأسر التي يقل دخلها الشهري عن 300 دولار امريكي. و لم يكن هناك فروق في معدلات القلق على حسب مكان السكن. بينما كان متوسط الاكتئاب في الأطفال 33.10، ومتوسط فقرات فقدان الحيوية والشعور بفقدان القيمة 12.98، والوحدة والقلق 9.03، والغضب والعنف 7.37. وأظهرت الدراسة أن هناك فروق في معدلات الاكتئاب لدى الأطفال من الأسر التي يقل دخلها الشهري عن 300 دولار امريكي. و لم يكن هناك فروق في معدلات الاكتئاب على حسب الجنس أو مكان السكن . أما بالنسبة للامهات، فقد كان متوسط الصحة النفسية العامة هو 6.54، متوسط الاعراض الجسدية هو 1.80، ومتوسط أعراض القلق و قلق النوم هو 2.18، ومتوسط عدم الكفاءة الاجتماعية هو 1.26، ومتوسط الاكتئاب 1. وتم حساب وجود اضطراب نفسي لدى الامهات من خلال استخدام نقطة القطع 5/4 على مقياس الصحة العامة النفسية للامهات، و اظهرت الدراسة أن 53.6% من الامهات لديهن اضطراب نفسي يحتاج لمزيد من الفحوص. و أظهرت الدراسة وجود علاقة ايجابية قوية بين مشاكل الصحة النفسية لدى الامهات وأعراض القلق و الاكتئاب لدى الأطفال في سن رياض الاطفال.

Correspondence author

Dr. Abdelaziz Mousa Thabet

Associate Professor of Child and Adolescent Psychiatry, Al Quds University, School of Public Health, Child Institute-Gaza
PO Box 5314, Email: abdelazizt@hotmail.com

Authors

Dr. Abdelaziz Mousa Thabet

Associate Professor of Child and Adolescent Psychiatry, Al Quds University, School of Public Health, Child Institute-Gaza
PO Box 5314-Palestine

Mr. Asharf Abu Khusa, Ministry of Health, Gaza,

Palestine

Dr. Panos Vostanis, MB, MD, FRCPsych

Professor of Child Psychiatry

School of Medicine - Greenwood Institute of Child Health, School of Psychology, Westcotes House, Westcotes Drive,
Leicester LE3 0QU, UK.

Trauma, PTSD, Anxiety and Coping Strategies among Palestinians Adolescents Exposed to War in Gaza

Abdelaziz Thabet, Omar EL-Buhaisi, Panos Vostanis

الصدمة النفسية الناتجة عن الحرب على غزة وعلاقتها بالقلق و كرب ما بعد الصدمة، و طرق التأقلم لدى

المراهقين الفلسطينيين

عبد العزيز ثابت، عمر البحصي، بانوس فوستانس

Abstract

Aim: The present study investigated types of traumatic events experienced by Palestinian adolescents exposed to war in Gaza in relation to PTSD, anxiety and coping strategies. **Methods:** The sample comprised 358 adolescents aged 15 to 18 years; 158 boys (44.1%) and 200 girls (55.9%). Self-administrated questionnaires included Gaza Traumatic Events Checklist, Spence Children's Anxiety Scale, Posttraumatic Stress Disorder according to DSM-IV scale, and the Adolescent-Coping Orientation for Problem experiences Scale. **Results:** The mean number of traumatic events reported by adolescents was 13.34 with 90.8% witnessing mutilated bodies on TV, 88.5% exposed to heavy artillery shelling, 86.6% seeing evidence of shelling, and 86.0% hearing sonic sounds from jetfighters. The mean total anxiety was 41.18, obsessive compulsive subscale was 8.90, generalized anxiety subscale was 4.46, social phobia was 6.99, separation anxiety was 6.16, physical injury fears was 5.48, and panic/Agoraphobia was 5.4. Girls reported more anxiety problems than boys; 11.8% of all participants reported no PTSD while 24.2% reported fewer than two symptom clusters. Criterion for partial PTSD was met by 34.31% while 29.8% reported symptoms meeting DSM-IV-TR criteria for full PTSD. Girls also reported more PTSD symptoms than boys. Participants reported coping by developing social support, investing in close friends, and/or engaging in demanding activities. Those reporting traumatic experiences developed less social support and requested more professional support while participants with PTSD coped by ventilating feelings, developing social support, avoiding problems. Participants with fewer PTSD symptoms tended towards solving their family problems while those with anxiety reported ventilating feelings, developing social support, and engaging in demanding activities. Participants with less anxiety sought more spiritual support.

Key words: Trauma, Gaza war, adolescents, anxiety, PTSD, coping

Declaration of interest: None

Introduction

Studies have reported that children and adolescents living in war and conflict areas are at high risk for developing mental health problems, such as post-traumatic stress disorder (PTSD), depression, and anxiety^{1,2}.

On Saturday 27th December 2008, there was a new wave of violence between Israel and Palestinians in the Gaza Strip. The Israeli air force bombarded the security positions in the Gaza Strip leaving hundreds dead and more than a thousand injured. The war continued for 23 days leaving 1330 dead and 5500 injured.³

Several studies have highlighted the influence of exposure to war on children's physical health and daily functioning as well as their mental health. Thabet et al. (2004, 2008)^{1,2} in studies of Palestinian children in the Gaza Strip found that children experienced a variety of traumatic events, including witnessing relatives being killed, demolition of homes, bombardment, and arrest of relatives. These were associated with PTSD, anxiety, and depression. Such traumatic experiences severely deteriorate children's sleep and cause uncontrollable

fears among babies and children, causing anxiety, panic attacks, and poor concentration. Military trauma in middle childhood and stressful life-events in early adolescence were risk factors for PTSD and depressive symptoms and decreased satisfaction with the quality of life during adolescence.⁴ In a similar study, which aimed to examine the impact of the level of exposure to political violence on the psychological symptomatology of Palestinian adolescents in the West Bank, 21.3% of the variance of psychological symptomatology could be explained by the domestic violence, exposure to political violence events, and family socio-economic status⁵. Moreover, a study of Palestinian adolescents in West Bank schools found that collective and individual exposure to violence negatively affected adolescents' mental health. There was a higher prevalence of depressive-like symptoms among girls compared with boys and in adolescents living in Palestinian refugee camps compared with those living in cities, towns and villages.⁶

Furthermore, in a study on the experiences of Palestinian children (aged 1-15 years) residing in the West Bank,

witnessing traumatic events such as murder, physical abuse, destruction of property, and threats were all associated with PTSD symptoms⁷. A study sample of 600 Palestinian youths (8-14 years) in the West Bank and Gaza Strip found a majority exposed to a variety of political conflicts and violence, 73% were witness to actual political violence, and 99% witnessed political violence through media reports. A significant predictor of PTSD symptoms was exposure to political conflict and violence. Gender and age also did not interact with exposure to political violence when predicting PTSD symptoms with other types of exposure.⁸

A study of 386 Palestinian children and adolescents from Gaza exposed to stressors due to siege and other political violence found that 12.4% (n=48) of participants reported probable PTSD with 22.37% (n=86) fulfilling the two criteria for partial PTSD and 26.7% (n=103) meeting one criteria for partial PTSD (re-experiencing or avoidance or hyperarousal). More than a third (38.4%, n=149) did not have PTSD.⁹

In another area of war and conflict, a high number of somatic complaints and memory problems were found among children (aged 10–14 years) exposed to war in Sri Lanka.¹⁰ A study of children in Kuwait reported an association between exposure to war-related trauma and poor subjective ratings of health and sleep quality among children aged 9 to 12 years.¹¹

Coping is one critical psychological process that concerns individuals' responses to stressors and life hassles.¹² As such, coping has gained considerable empirical attention because of its mediating role in the relationship between stress and trauma and psychological well-being of child and adolescent victims of war and conflict. Coping has been conceptualized as a multidimensional construct with at least two broad categories: problem-focused and emotion-focused coping.¹² Problem-focused coping strategies involve efforts by an individual to obtain information and mobilize actions with the intention of changing the reality of the person's environment interaction.¹³ These problem-focused actions may be directed at either the environment (e.g., planning, taking control of the situation) or the self (e.g., changing the meaning of an event, recognizing personal resources or strengths).¹⁴ By contrast, emotion-focused strategies are aimed at regulating one's emotional responses to stressful situations without changing the realities of the stressful situation. Children coping after Hurricane Floyd were found to have used six coping strategies: wishful thinking, cognitive restructuring, social support, distraction, emotional regulation, and problem solving. Girls used more social support than boys as a coping

strategy.¹⁵ Similarly, a study of coping strategies and behavioral/emotional problems among Chinese adolescents suggested they focused on positive aspects, tried to improve the situation, stayed away from people, felt depressed, and suppressed problems from their mind.¹⁶ Palestinian children and adolescents used normative adaptive defense mechanisms to overcome their problems and used coping strategies to develop positive thinking and behavior.¹⁷ A study examining the effect of traumatic events experienced and coping strategies by 250 children who lost their fathers in the Gaza Strip found that the most common strategy was religious coping (86.4%). The least common strategy was substance use (30.3%). There were significant differences between positive reinterpretation and growth, and religious coping according to gender in favor of girls. There were significant differences between the means of positive reinterpretation and growth, mental disengagement, focus on and venting of emotion, use of instrumental social support, active coping, religious coping, restraint, and planning according to trauma levels in favor of severe traumatic events.¹⁸ Furthermore, a study of adjustment among youth in military families in the USA found that children reporting effortful control had fewer emotional symptoms and fewer conduct problems while child reporting avoidant coping strategies had higher levels of emotional symptoms.¹⁹ Children reporting support seeking behaviors had higher levels of emotional symptoms. Interestingly, effortful control was not correlated significantly with any of the coping strategies. Similarly, in a study on the effect of violence on Chicago's Southside, African American adolescents living and coping with community violence found that adolescents used coping styles ranging from "getting through," which included both an acceptance of community conditions; "getting along," which included self-defense techniques; "getting away," which included avoidance coping strategies; and "getting back," which consisted of confrontational coping strategies. Boys reported more confrontational coping styles than did girls who utilized more avoidance approaches. Widespread school-based interventions are warranted given the high prevalence of community violence exposure among these youth and may provide important supports for coping with such trauma.²⁰

The present study investigated types of traumatic events arising from the war on Gaza experienced by Palestinian adolescents in relation to PTSD and anxiety and coping strategies as mediating factor.

Methods

Participants and procedure

The study sample consisted of 358 adolescents. The age ranged from 15 to 18 years with mean age of 16.7 years (SD=0.80). The sample of adolescents was randomly selected from 10 schools in the Gaza Strip (two schools from each of the governorates of the Gaza Strip - one boys' and one girls' school). From each school three classes were selected randomly (10th, 11th, 12th class) and again we selected randomly the sample from each class. At the end of the selection process, the sample consisted of 158 boys (44.1%) and 200 (55.9%) girls.

Study procedure

In order to conduct the study, five mental health professionals (1 man and 4 women) received four hours training for data collection. The aim of the study was explained as was the sample, questionnaires and ways of interviewing the adolescents. Before starting data collection an approval letter was obtained from the Palestinian Ministry of Health Ethical Committee together with an official letter from the General Director of the Ministry of Education in order to conduct the study in governmental secondary schools and facilitate the process of data collection. All study participants received a letter explaining the aim of the study and assuring that information was for research purposes only and would be kept confidential. A similar letter was sent to the participants' parents. All parents who consented were asked to provide written permission for their adolescent's participation. Data collection took place in the participants' classrooms. Data collection was in April 2009 three months after war on Gaza.

Measures

Sociodemographic status

This was gathered from adolescents by questionnaire which included gender, age, place of residence, number of siblings and rooms, parents' education, parents' employment, family income, etc.

Gaza Traumatic Event Checklist (GTECL)²

The Gaza Traumatic Checklist was originally developed by the Gaza Community Mental Health Program to assess level of trauma exposure typical for the Palestinian population in Gaza.² It was updated after the most recent war on Gaza in 2008-2009 and lists 30 events relevant to the Israeli attacks, which participants indicate having experienced by answering yes or no; for example, "Hearing about the killing of a close relative" and "Hearing the sounds of the fighter planes." The total composite score (0-30) provides an indication of the amount and type of war exposure the respondent has experienced during the war. Reliability of the Gaza

Traumatic Events Checklist was calculated by using split half method (part 1 = 9 items & part 2 = 9 items); where the Pearson's correlation coefficient was (R1= 0.66) and by using Spearman-Brown equation to modify the length of the scale. The reliability coefficient was (R2 = 0.66).

Spence Children's Anxiety Scale (SCAS)²²

The SCAS was developed to assess anxiety symptoms in children in the general population. The SCAS has 38 items on a 0 (never) to 3 (always) scale and consists of six subscales: panic attack and agoraphobia (9 items), separation anxiety disorder (6 items), social phobia (6 items), physical injury fears (5 items), obsessive compulsive disorder (6 items), and generalized anxiety disorder (6 items). The SCAS showed high internal consistency, not only for the total scale, but also for each subscale.²² The scale was used previously with children in the Gaza Strip and showed that the internal consistency calculated using Cronbach's alpha, was $\alpha=0.85$. The split half reliability of the scale was =0.86.²³ In the present study, the reliability of the scale using Cronbach's alpha was 0.88 and the split half was 0.83.

UCLA PTSD Index for DSM-IV: Adolescent Version²⁴

The items of the UCLA PTSD indices are keyed to DSM-IV criteria and can provide preliminary PTSD diagnostic information. Self-reports for children and adolescents exist as well as a parent report of PTSD symptoms. The adolescent version (for adolescents aged 13 years and older) contains a total of 22 questions and has been administered in classroom settings. A 5-point Likert scale from 0 (none of the time) to 4 (most all the time) is used to rate PTSD symptoms. The structure of the measure facilitates scoring. The first 18 questions on the child and adolescent version, and the first 19 questions on the parent version, assess for DSM-IV PTSD Criterion B, C, and D symptoms. Three separate scores were computed from these 20 items for intrusive symptoms (Criterion B), avoidance symptoms (Criterion C), and hyperarousal symptoms (Criterion D). Questions 13-19 assess Criterion A1, and 20-22 assess for Criterion A2. The internal consistency of the Arabic version of the PTSD Adolescent Reaction Index was highly satisfactory (Cronbach's alpha = 0.88) and the split half was 0.82. In the present study the reliability of the scale using Cronbach's alpha was 0.85 and split half was 0.82.

A-COPE Adolescent-Coping Orientation for Problem experiences^{25, 17}

The A-COPE is a self-report questionnaire consisting of 54 specific coping behaviors which adolescents may use to manage and adapt to stressful situations. Subjects

reported on a 5-point scale (1 = Never; 5= Most of the time) to indicate how often they use each a particular coping strategy when feeling tense or facing a problem or difficulty. Others used the factor analyses for the A-COPE questionnaire and reported 12 subscales.²⁵ The scale was translated into Arabic and validated for the culture.¹⁷ In the present study, the split half reliability technique of the scale was high ($r = .80$). Internal consistency of the scale, calculated using Chronbach's alpha, was ($\alpha = .84$).

Statistical analysis

Data was entered and analyzed using the Statistical Package for Social Science version 13 (SPSS v13) for data entry and analysis. The SPSS statistical program has a variety of options for optimal use in such studies. Other statistical analysis was used to clarify the differences between the groups, such as frequencies, *t*- independent test, comparing means and correlation coefficient test for relationship with different variables. Multiple regression analysis used trauma as the dependent variable, PTSD

and anxiety as independent variables and coping strategies as covariant.

Results

Demographic characteristics of the study sample

The sample consisted of 358 adolescents: 158 boys (44.1%) and 200 girls (55.9%), aged between 15-18 years (Mean=16.7; SD=0.82). Adolescents coming from North Gaza were (19.6%), from Gaza city (29.4%), from the middle area (17.3%), from Khan Younis city (18.9%), and from Rafah city (14.9%). In terms of number of siblings, 19% of participants had four or fewer siblings, 48.3% had five to seven siblings, and 32.7% had eight or more siblings. In terms of place of residence, 66.2% of the study sample lived in cities, 26.0% lived in camps, and 7.8% lived in villages. In terms of family monthly income, 21.8% had family income less than \$150 US, 28.5% had family income from \$151-300US, 17.2% had from \$301-500 US, 10.9% had from \$501-750 US, and 19.6% had from more than \$751 US.

Table 1: Demographic and personal characteristics of the study participants (N = 358)

	N	%
Gender		
Boys	158	44.1
Girls	200	55.9
Place of residence		
North Gaza	70	19.6
Gaza	123	29.4
Middle zone	69	17.3
Khan Younis	75	18.9
Rafah	21	14.9
Type of residence		
City	237	66.2
Camp	94	26
Village	27	7.8
Number of siblings		
4 or fewer	68	19
5 to 7 siblings	172	48.3
8 or more	118	32.7
Family income by US \$		
\$150 US and less	109	30.4
\$151- 300 US	78	21.8
\$301 – 500 US	62	17.3
\$501 – 750 US	39	10.9
More than \$751 US	70	19.6

Types of traumatic events

Among the most common traumatic events identified in the present study, 90.8% of participants reported seeing mutilated bodies on TV, 88.5% heard shelling of the area by artillery, 86.6% witnessed signs of shelling on the ground, and 86.0% heard the sonic sounds of jetfighters. Traumatic events were reported as follows: physical injury due to bombardment of own home (21.8%), being arrested during the ground incursion (22.9%), being shot by bullets, rocket, or bombs (24.0%), and (24.3%) reported feeling threatened to death when the army used them as human shields to arrest neighbors.

Frequencies of traumatic events

Participants in the present study reported from 2 – 30 traumatic events with a mean total of 13.34 (SD =7.37) traumatic events.

Traumatic experiences and sociodemographic variables

In order to find the differences in traumatic experiences reported by adolescents according to other socioeconomic variables such as gender and type of residence, a *t*-independent test was performed to find the gender differences in total traumatic events. Results showed significant differences in traumatic events arising from the Gaza War according to gender in favor of boys ($t=3.48, p=0.001$).

Using One Way ANOVA to find differences between total traumatic events and types of residence, results showed a significant difference in traumatic events according to type of residence of the study sample in favor of living in village rather than city or camp ($F=7.41, p=0.001$).

Table 2: Frequency of traumatic events of the study sample (N=358)

No	Traumatic events	Yes	%
1.	Watching mutilated bodies on TV	325	90.8
2.	Hearing shelling of the area by artillery	317	88.5
3.	Witnessing the signs of shelling on the ground	310	86.6
4.	Hearing the sonic sounds of jetfighters	308	86
5.	Witnessing people being killed by rockets	240	67
6.	Deprivation from water or electricity during detention at home	226	63.1
7.	Hearing about the killing of a close relative	217	60.6
8.	Hearing about the killing of a friend	215	60.1
9.	Hearing about the arrest of a someone or a friend	199	55.6
10.	Witnessing firing by tanks and heavy artillery at neighbors homes	187	52.2
11.	Being detained at home during incursion	180	50.3
12.	Forced to leave home during the war	175	48.9
13.	Threatened by shooting	165	46.1
14.	Witnessing a friend's home being demolished	158	44.1
15.	Having personal belongings destroyed during incursion	117	32.7
16.	Witnessing shooting of a friend	113	31.6
17.	Having a family member being threatened or killed	108	30.2
18.	Exposure to burns by bombs and phosphorous bombs	108	30.2
19.	Witnessing the killing of a friend	107	29.9
20.	Deprivation from going to toilet and leaving the room at home	102	28.5
21.	Witnessing firing by tanks and heavy artillery at own home	99	27.7
22.	Witnessing shooting of a close relative	98	27.4
23.	Witnessing killing of a close relative	95	26.5
24.	Witnessing of own home demolition	93	26
25.	Beating and humiliation by the army	93	26
26.	Threatened to death when being used as human shield to arrest neighbors	89	24.9
27.	Threats of being killed	87	24.3
28.	Shooting by bullets, rocket, or bombs	86	24
29.	Being arrested during the last incursion	82	22.9
30.	Physical injury due to bombardment of home	78	21.8

Frequency of Anxiety scale items

The present study showed that adolescents commonly reported the following anxiety symptoms: I have to do some things over and over again (like washing my hands, cleaning or putting things) (65.9%) and when the participant had a problem, his / her heart beats really fast (62%), she / he felt scared when having to take a test (50.2%).

Means and SD of anxiety and subscales

Results showed that the mean for total anxiety was 41.18 (SD = 18.32), mean obsessive compulsive subscale was 8.90 (SD= 3.39), mean generalized anxiety subscale was

4.46 (SD =3.42), social phobia subscale mean was 6.99 (SD=3.69), separation anxiety subscale mean was 6.16 (SD= 3.69), physical injury fears subscale mean was 5.48 (SD =3.99), and mean panic/Agoraphobia subscale was 5.41 (SD= 4.58).

Differences in anxiety according to gender

Results demonstrated that girls reported more total anxiety and other anxiety subtypes (panic/agoraphobia, separation anxiety, physical injury fears, social phobia, obsessive compulsive disorder, generalized anxiety) than boys.

Table 3: *t*-independent test comparing mean of anxiety according to gender (N=358)

Variables	Gender	No	Mean	SD	<i>t</i> -value	Significant level
Panic/Agoraphobia	Male	158	3.93	3.64	-5.66	0.001
	Female	198	6.58	4.91		
Separation anxiety	Male	158	3.58	3.13	-11.70	0.001
	Female	198	8.20	4.09		
Physical injury fears	Male	158	3.44	2.42	-15.10	0.001
	Female	200	8.07	3.19		
Social phobia	Male	158	5.25	3.31	-8.65	0.001
	Female	200	8.35	3.39		
Obsessive compulsive	Male	158	7.99	3.15	-4.63	0.001
	Female	200	9.62	3.41		
Generalized anxiety	Male	158	6.14	2.91	-10.76	0.001
	Female	198	9.93	3.58		
Total anxiety	Male	158	41.31	13.76	-12.43	0.001
	Female	196	61.53	16.29		

Prediction of traumatic experiences by anxiety

In a univariate linear regression analysis, each traumatic event was entered as an independent variable in a multiple regression model with total anxiety scores as the dependent variable. Four traumatic events were significantly associated with total anxiety symptoms: hearing shelling of the area by artillery (B=0.16, p=0.007); hearing the sonic sounds of jetfighters (B= 0.12, p=0.03); being forced to leave home during the war (B= 0.15, p=0.003); hearing about the arrest of someone or a friend (B= 0.11, p = 0.02).

Prevalence of PTSD

Results showed 11.8% of participants reported no PTSD; 24.2% reported fewer than two clusters of symptoms, and 34.31% reported symptoms meeting criteria for partial PTSD while 29.8% reported symptoms meeting criteria for full PTSD according to DSM-IV-TR. The results showed that girls reported more PTSD than boys (t = - 4.14, p = 0.001).

Table 4: Prevalence of PTSD level of the study sample (N=358)

PTSD	No	%
No PTSD	42	11.8
One symptom	86	24.2
Partial PTSD	122	34.3
Full PTSD	106	29.8

Differences in PTSD according to genders

Results showed that there were significant differences in PTSD according to gender (t = -4.14, p =0.001) in that

girls suffered from PTSD more than boys. Results also showed significant differences in PTSD subscales (re-experiencing and hyperarousal) in favor to girls while

there were no significant differences in the PTSD subscale for avoidance on the basis of gender ($t = -1.83$; $df = 358$; $p = 0.06$).

In a univariate linear regression analysis, each traumatic event was entered as an independent variable with total PTSD scores as the dependent variable. Two traumatic events were significantly associated with total PTSD symptoms: hearing about the arrest of someone or a friend ($B=0.19$, $p=0.001$); and being forced to leave home during the war ($B=0.14$, $p=0.001$).

Types of coping subscales (ACOPE)

Adolescents in the present study used a group of coping strategies to overcome trauma. The most common coping items were “try to improve” self (get body in shape, get better grades, etc.) 58.9%, "try to keep up friendships or make new friends" (45.5%), and then “go along with

parents and rules” (40.2%). The least frequently reported items were: “try to see the good things in a difficult situation (0.6%),” “get professional counseling” (not from a school teacher or school counselor) (1.4%), and “use drugs not prescribed by a doctor (2.5%).

Total ACOPE mean scores were 152.6 (SD=22.4), seeking diversion mean was 22.45 (SD=5.47), developing social support was 20.05 (SD=4.23), and developing self-reliance mean was 18.92 (SD=4.16). Results demonstrated no significant differences in total coping strategies between boys and girls ($t = -0.04$; $P=0.97$) while there were statistically significant differences in coping strategies subscales (i.e. developing social support, solving family problems, being humorous) toward girls. Also, significant differences were found in coping strategies subscales (avoiding problems, developing social support, investing in close friend, seeking professionals support) in favor of boys.

Table 5: Means, standard deviation of ACOPE subscales (N=358)

Coping subscales	Mean	SD
Total ACOPE	152.6	22.4
Seeking diversion	22.45	5.47
Developing social support	20.05	4.23
Developing self-reliance	18.92	4.16
Solving family problems	17.82	5.01
Ventilating feelings	15.25	3.63
Engaging in demanding activities	12.43	3.04
Relaxing	12	3.18
Avoiding problems	10.12	2.58
Seeking spiritual support	8.13	2.94
Being humorous	5.47	2.08
Seeking professionals support	3.19	1.61

Prediction of traumatic experiences by coping strategies

In a unilateral linear regression analysis, each traumatic event was entered as an independent variable in a multiple regression model with total coping score as the dependent variable. Four traumatic events were significantly associated with total anxiety symptoms: hearing about the killing of a friend ($B=0.15$, $p=0.004$); and being threatened to death by the army when used as human shield to arrest neighbors negatively predicted coping in adolescents ($B= - 0.13$, $p=0.01$).

Relationships between coping, trauma, PTSD, and anxiety

In order to test the relationship between trauma, anxiety, and PTSD and coping strategies used by adolescents, we

used the correlation coefficient test by Pearson correlation. Results showed that traumatic events were significantly positively correlated with seeking professional help ($r= 0.19$, $p=0.01$). PTSD was positively correlated with ventilating feelings ($r= 0.12$, $p= 0.01$), developing social support ($r= 0.48$, $p= .001$), avoiding problems ($r= -0.13$, $p= 0.01$), and relaxing ($r= 0.48$, $p= .001$), and PTSD as negatively correlated with solving family problems ($r= -0.13$, $p= 0.01$).

Anxiety was correlated positively with total coping ($r= 0.12$, $p= 0.01$), ventilating feelings ($r= 0.15$, $p= 0.01$), developing social support ($r= 0.78$, $p= 0.01$), solving family problems ($r= 0.11$, $p= 0.01$) and engaging in demanding activities ($r= 0.16$, $p= 0.01$).

Table 6: Pearson correlation matrix of major study variables (trauma, PTSD, anxiety, and coping strategies)

Coping strategies	Total PTSD	Traumatic events	Total anxiety
Total coping	.03	.01	.12*
Ventilating feelings	.12*	.01	.15**
Seeking diversion	.01	.06	.05
Developing self-reliance	-.02	-.01	.02
Developing social support	.48**	-.01	.76**
Solving family problems	-.13*	-.04	.11*
Avoiding problems	.13*	.09	-.07
Seeking spiritual support	.02	.05	-.08
Investing in close friend	-.07	-.07	-.06
Seeking professionals support	.07	.19**	-.07
Engaging in demanding activities	.00	.05	.16**
Being humorous	-.05	.03	.05
Relaxing	.11*	.02	.09

** Correlation is significant at the 0.01 level 2-tailed.

Discussion

The present study showed that at the end of a three month war on Gaza in 2009, Palestinian adolescents reported many traumatic events, including seeing mutilated bodies and injured people on TV, and hearing the sounds of shelling in the area. Such traumatic experiences were commonly reported by Palestinian children and adolescents in previous studies on the Gaza Strip.^{2,26} Palestinian adolescents in the present study reported a high number of traumatic events (mean=13.3). The number of traumatic experiences was higher than a study on the effect of continuous shelling along the border areas of the Gaza Strip on children in which participants reported fewer traumatic events (mean=7.7).² The present study highlighted the intensity and severity of traumatic events during the war and the lasting effect of adolescent tendencies to store memories of the traumatic events for much longer than expected.

The study showed that 29.8% of participants met the full criteria for PTSD according to DSM-IV-TR. PTSD prevalence rates were consistent with similar studies in the area. A study of 403 Palestinian children aged 9–15 years, who lived in four refugee camps, adopted a cut-off score of 40 as the threshold for likely clinical caseness (i.e., severe and very severe PTSD reactions grouped together), 95 participants (23.9%) scored within that range.¹ In the present study there was strong association between total traumatic events and PTSD. This finding was consistent with previous studies that demonstrated how exposure to trauma was the best predictor of PTSD in children.^{1,2}

Results showed significant differences in PTSD according to gender in favour of girls. This is consistent with the study of PTSD prevalence as measured by the

Child PTSD Symptom Scale³⁰ with approximately 30% of the children meeting the diagnosis. More girls (33%) than boys (26%) met the diagnostic criteria of PTSD even though boys reported more violence exposure than girls.

The results showed that mean for total anxiety was 41.18, obsessive compulsive symptoms was 8.90, generalized anxiety symptoms was 4.46, social phobia symptoms mean was 6.99, separation anxiety symptoms was 6.16, physical injury fears symptoms mean was 5.48, and mean panic/Agoraphobia symptoms was 5.41. The same scale for anxiety was used for a study on anxiety disorder in Japanese children and adolescents. Results demonstrated mean scores for anxiety to be 23.50 for children and 20.93 for adolescents, which was a much lower figure than those found in the present study.³⁰ The findings for anxiety demonstrated higher levels than a study which examined the relationship between exposure to war stressors and psychological distress of a community sample of 139 adolescents, in which 23.7% of adolescents were categorized as likely cases of clinical anxiety.³¹ Also our rate of anxiety was higher than other studies conducted in European countries. A study of anxiety among four countries (Germany, Greek Cyprus, Sweden, Italy) found the mean anxiety disorder was (Germany= 21.91, Greek Cyprus= 28.42, Sweden= 23.94, Italy= 27.11).³² High anxiety scores in the present study could be due to the high level of stress and trauma experienced by those living in the Gaza Strip during the last war on Gaza as well as other socioeconomic risk factors, such as unemployment of father, living in big families with overcrowded living conditions.³³ Also, a recent study of 139 Palestinian adolescents (ages 12 to 17 years) exposed to traumatic

events arising from the war on Gaza found a significant association between higher levels of exposure and PTSD symptoms as measured by CRIES-13. A significant positive relationship was also found between level of exposure and anxiety.²⁹

The present study found that adolescents used a group of coping strategies to overcome trauma due to war. Adolescents commonly used social support, investing in close friends, engaging in demanding activities. The finding was consistent with previous studies of children and adolescents in the Gaza Strip, which showed similar coping strategies were used to cope with the impact of previous trauma due to political violence during the Al Aqsa Intifada.^{2,17} Use of social support as a coping behavior was emphasized by others who examined the influence of parental and other adult support on academic achievement in African American girls. Adult support was found to be an important predictor in positive academic outcomes.³⁴ Others documented a positive association between children's exposure to media cues and subsequent anxiety levels.³⁵ This was consistent with other studies carried out among African American youth, which found that African American high school students who commonly used collaborative religious coping (i.e., seeking to work together with God to solve a problem) were protected against suicidal ideation whereas self-directed coping (i.e., relying on oneself to manage a problem) acted as a risk factor.³⁶

The present study showed that adolescents with higher traumatic experiences were positively contacted and asked for professional help. Adolescents with high levels of PTSD used more coping strategies, such as ventilating their feelings, developing social support, avoiding problems, and relaxing while adolescents with PTSD focused less on solving family problems as a coping strategy. Adolescents with anxiety problems coped by ventilating feelings, developing social support, solving family problems and engaging in demanding activities. Similarly, in a study of orphaned Kurdish children revealed that the nature of traumatic events determined their impact on coping strategies. The study showed that family-related hardships, such as separations, neglect, and marital conflict compromised children's ability to cope by actively restructuring their experiences while economic hardships were associated with reduced active social affiliation.³⁷ The results of the present study were consistent with research showing that exposure to stressful experiences compromised children's constructive, active, and affiliating coping responses.^{38,39,40} It was consistent with a study that examined African American children and their parents' coping strategies post-Hurricane Katrina, which

suggested that both children and parents reported active coping strategies most frequently followed by adaptive coping strategies and avoidance. The subtypes of coping responses reported most frequently included emotionally processing with family and kinship members, distraction (play and work), seeking meaning and understanding (religious or spiritual guidance) and seeking social support and coping assistance.⁴¹

Clinical implications and recommendations

Findings from the present study have several implications for clinical practice. First, it will not be possible to easily identify adolescents at risk of compound trauma and long-term distress based on a few demographics and exposure criteria. Earlier psychological symptoms provide the best indicators when predicting PTS symptoms and anxiety disorder. Early screening for stress symptoms could enable early interventions. However, early interventions such as debriefing are generally not recommended. In our view, there may be good alternative early interventions. For example, when an adolescent has been identified as being at risk, an intervention focused on activating social support and / or preparations to engage the adolescent in therapy could be started. The effects of these interventions would obviously have to be studied. Therapeutic programs might include crisis intervention and counseling for victims of violence or for those at risk, support group, and behavioral therapy for those experiencing mental illness as a consequence of violence.

Family therapy programs and home visits are also recommended. Family therapy programs could involve interventions aimed at improving communications and interactions among family members as well as teaching problem-solving skills to assist parents and children facing various traumatic events. Regular home visits to at-risk families by trained mental health professionals could include interventions, such as counseling and therapy. Public education campaign are equally important, such as those involving public meetings, workshops and the media to target entire communities or for specific settings such as schools, civil institutions, and other health agencies. We have to create community policies to provide partnerships and coordination among various social institutions and governmental as well as nongovernmental organizations. Also, extracurricular activities could be offered for at-risk children and adolescents, such as drama, sport, art, and music etc. Alongside such programs, specialized training for mental health professionals, parents, and teachers would better enable them to identify and deal with specific types of

violence and the psychosocial consequences. Specialist trained team for crisis intervention could be organized, which would enable teams to work during crisis and disasters and provide help for those who are need as well as provide support for community groups and their community during crisis.

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المخلص

الهدف: كان الهدف من هذه الدراسة هو معرفة أنواع الأحداث الصادمة الناتجة عن الحرب على قطاع غزة، و علاقتها بكم من بعد الصدمة والقلق، واستراتيجيات التأقلم المستخدمة من قبل المراهقين للتغلب على الصدمات النفسية و آثارها. **الطريقة:** تكونت عينة الدراسة من 358 من المراهقين الذين تتراوح أعمارهم بين 15 إلى 18 سنة. وكان متوسط العمر 16.7 عاماً. وكان توزيع العينة على 158 من الأولاد (44.1 %) و 200 من البنات (55.9 %). وأجريت مقابلات مباشرة مع المراهقين المشمولين من خلال استبيان يشمل معلومات اجتماعية وديموغرافية، و مقياس الخبرات الصادمة عن الحرب على غزة، و مقياس سبنس للقلق، و مقياس كرب ما بعد الصدمة، و مقياس التأقلم للمراهقين. وأظهرت الدراسة أن متوسط الأحداث الصادمة التي تعرض لها المراهقين كان 13.34 حدثاً، وكانت الخبرات الأكثر شيوعاً التي ذكرها المراهقين هي: مشاهدة الجثث المشوهة و الجرحى على شاشة التلفزيون و بلغت النسبة 90.8 %، و سماع صوت القصف من المدفعية الثقيلة في المنطقة التي يعيش فيها و بلغت النسبة 88.5 %، و رؤية آثار القصف المدفعي على الأرض و بلغت النسبة 86.6 %، و سماع صوت الطائرات الحربية و هي تخترق حاجز الصوت و بلغت النسبة 86 % . أظهرت النتائج أن متوسط القلق لدى الأطفال هو 41.18، و متوسط أعراض الوسواس القهري 8.90، و كان القلق 4.46 العام، و الرهاب الاجتماعي 6.99، و قلق الانفصال 6.16، و كانت مخاوف الإصابة الجسدية 5.48، و كان متوسط الذعر/ الخوف من الأماكن المكتشفة 5.4. أظهرت النتائج وجود فروق ذات دلالة إحصائية في مجموع أعراض القلق وجميع أنواع القلق الأخرى لصالح الفتيات. وفقاً لمقياس كرب ما بعد الصدمة، أظهرت الدراسة أن 11.8 % ليس لديهم كرب ما بعد الصدمة، و كان 24.2 % من الأقل من المراهقين لديهم اثنين من الأعراض، و كان لدى 34.31 % كرب جزئي ما بعد الصدمة، في حين كان 29.8 % يعانون من كرب ما بعد الصدمة. وأظهرت النتائج أن هناك فروق ذات دلالة إحصائية في كرب ما بعد الصدمة لصالح الفتيات. أظهرت النتائج أن المراهقين الفلسطينيين لجأوا لاستراتيجيات مختلفة للتأقلم مع الخبرات الصادمة و كان أكثر الاستراتيجيات استخداماً طلب الدعم الاجتماعي، و اللجوء لصديق، و العمل بجد و نشاط في الأنشطة المختلفة المطلوبة منهم. و تبين أن هناك ارتباط عكسي بين التعرض للخبرات الصادمة و البحث عن الدعم الاجتماعي من الآخرين. و زيادة التعرض للخبرات الصادمة أدت إلى طلب المساعدة من المهنيين المتخصصين في المجال النفسي الاجتماعي. أما بالنسبة للعلاقة بين كرب ما بعد الصدمة و استراتيجيات التأقلم فقد أظهرت الدراسة أنه كلما زادت أعراض كرب ما بعد الصدمة كلما لجأ المراهقين إلى التعبير عن المشاعر، و طلب الدعم الاجتماعي، و تجنب الانخراط في المشاكل، و كانت هناك علاقة سلبية ما بين أعراض كرب ما بعد الصدمة مع محاولة المراهقين لاستخدام حل المشاكل الأسرية كطريقة للتأقلم. و كان هناك علاقة إيجابية بين أعراض القلق و التعبير عن المشاعر، و طلب الدعم الاجتماعي، و العمل بجد و نشاط في الأنشطة المختلفة المطلوبة منهم. و ارتبط القلق سلبياً مع السعي للدعم الديني.

التطبيقات العملية و التوصيات: لنتائج هذه الدراسة عدة انعكاسات على التطبيقات العملية. اولاً، أظهرت هذه الدراسة أنه بعد بضعة أشهر من إنتهاء الحرب على غزة فما زال العديد من المراهقين يستحضرون الخبرات الصادمة المتعلقة بالحرب الأمر الذي أدى إلى وجود أعراض كرب ما بعد الصدمة والقلق. ولكن كثير من هذه الأعراض النفسية تم التأقلم معها بإيجابية. وهذه النتيجة تسلط الضوء على الاحتياجات الماسة لاستحداث وتطوير البرامج النفسية الاجتماعية التي تزيد من المهارات الاجتماعية للمراهقين والاتصال و التواصل. و كذلك وضع برامج في المدارس و نوادي الشباب باستخدام الأنشطة اللامنهجية للأطفال والمراهقين مثل الدراما النفسية ، والرياضة ، والفن و المسرح لفترة طويلة.

Correspondence Author

Dr. Abdelaziz Mousa Thabet

Email: abdelazizt@hotmail.com

Authors

Dr. Abdelaziz Mousa Thabet

Associate Professor of Child and Adolescent Psychiatry, Al Quds University, School of Public Health, Child Institute-Gaza
P.O. Box 5314.

Mr. Omar EL-Buhaisi, MD, MCMH

Director of Middle Area Community Mental Health Center-Ministry of Health-Gaza, email: dromar-md@hotmail.com

Dr. Panos Vostanis, MB, MD, FRCPsych

Professor of Child Psychiatry

School of Medicine - Greenwood Institute of Child Health, School of Psychology Westcotes House, Westcotes Drive,
Leicester LE3 OQU, UK. Email: pv11@leicester.ac.uk

Somatization among Compensated Hepatitis C Virus Patients

Khaled Abd Elmoez, Mohamed Amin, Wafaa Ellithy, Yossri Ashour
الجسدنة بين مرضى فيروس الإلتهاب الكبدي الوبائي (ج) ذوي الحالة المستقرة
خالد عبد المعز، محمد امين، وفاء الليثي، يسرى عشور

Abstract

B **ackground:** Egypt has a population of more than 80 million and contains the highest prevalence of hepatitis C in the world. The national prevalence rate of hepatitis C Virus (HCV) antibody positivity has been estimated to be between 10-13%. The estimated adjusted national prevalence rate of chronic hepatitis C infection is 7.8% or 5.3 million people in 2004. Neuropsychiatric symptoms have been reported in association with both hepatitis C and α interferon (IFN- α) treatment. **Objectives:** To assess somatization among compensated hepatitis C virus patients within one year of diagnosis **Methods:** In the current cross sectional controlled study, a selective sample of 48 compensated hepatitis C virus patients and their matched controls were interviewed using the Symptom Checklist (SCL-12-R) to determine the presence and severity of somatic symptoms. Patients were also interviewed to assess anxiety and depression using Hamilton anxiety rating scale and Hamilton rating scale for depression. Before that, patients had been examined by hepatologist in hepatitis outpatient clinic of El-Mataria Teaching Hospital to determine the hepatic status of all patients and that the condition is newly diagnosed and is compensated. **Results:** Somatization was more common among patients (33.3%) compared the healthy control subjects (16.7%); $p=0.059$. Headache, fatigue, chest pain, low back pain, nausea, muscle ache, difficulty in breathing, hot and cold flushes, numbness/tingling, difficulty in swallowing and limb weakness were the more frequent symptoms mainly among HCV patients with statistically significant difference; except for chest pain. However, body weakness was less frequent in both groups. Hamilton's rating score for depression was statistically significantly higher among HCV patients than control subjects (mean; 21.5 ± 8.7 vs. 15.4 ± 8.7 , $p=0.001$). Hamilton's rating score for anxiety among HCV patients was also statistically significantly higher than control subjects (mean; 18.4 ± 10.6 vs. 12.3 ± 9.5 ; $p=0.004$). **Conclusion:** Patients with viral hepatitis C had a higher rate and severity of somatization compared to normal controls. Special attention should be paid to active participation of consultation-liaison psychiatry in the management plan of chronic viral hepatitis C.

Keywords: Somatization; psychiatric disorders; hepatitis c virus.

Declaration of interest: None

Introduction

Chronic hepatitis C virus (HCV) is a major cause of chronic liver disease affecting approximately 150 million individuals worldwide^{1,2}. Hepatitis C poses a very significant health problem on a global scale^{3,4}.

In Egypt the situation is quite worse. Egypt has a population of more than 80 million and contains the highest prevalence of hepatitis C in the world. The national prevalence rate of hepatitis C virus (HCV) antibody positivity has been estimated to be between 10-13%. Since 30-40% of individuals clear the infection shortly after exposure based on national studies and village studies in Egypt, the estimated adjusted national prevalence rate of chronic hepatitis C infection is 7.8% or 5.3 million people in 2004. Only one third of these individuals (1.75 million) are estimated to have chronic liver disease (elevated ALT) and, furthermore, among

these one third (577,000 people) are suffering from advanced liver disease⁵.

Neuropsychiatric symptoms have been reported in association with both hepatitis C and interferon (IFN- α) treatment. During both the acute and chronic stages of hepatitis C, malaise, fatigue, and depressive symptoms are frequently reported. Among 309 substance abusers⁶, depressive symptoms were reported in 57.2% of those with hepatitis C compared to 48.2% in patients without the hepatitis C virus, as determined with the Center for Epidemiologic Studies Depression Scale. The group with hepatitis C also scored lower on the subscale for positive affect and higher on the subscale for somatic/retarded activity. However, only the difference in positive affect was statistically significant⁷.

Anxiety is another issue that many patients with HCV experience. One study found that 24% of HCV patients had a current anxiety disorder. It also suggested that

many patients don't know they have an anxiety disorder until after they learn they have HCV⁸. Most research about anxiety shows that it is at least as common as depression⁹. Despite that, it is common for anxiety disorders to be overlooked by doctors and other medical providers¹⁰. This is due to the high prevalence of depression among Egyptians so they are searching for way to express depression in somatic from through somatization¹¹.

In the present study we will aim to examine a group of patients with HCV for psychiatric manifestations "somatization" and their attribution to common psychiatric disorder, e.g. anxiety and depression.

Patients and methods

Type of the study

The study was carried out as a descriptive cross sectional study design.

Study setting and studied population

The study was carried out in El-Mataria Teaching Hospital among HCV patients after fulfilling the following inclusion and exclusion criteria.

Inclusion criteria

1. Both genders.
2. Any age above 18.
3. Newly diagnosed within maximum of one year.
4. Compensated hepatic condition (based on laboratory assessment).
5. Whether on interferon therapy or not.

Exclusion criteria

1. Patients with advanced liver disease.
2. Patients with other chronic illnesses.

Control group included age and gender matched health individuals recruited from relatives of the studied patients for comparative purposes and who were apparently free of any psychiatric or chronic medical conditions.

Sampling

Sample size estimation:

The sample size was determined by using the following equation¹².

$$\text{sample size (n)} = \left(\frac{z}{\Delta}\right)^2 P.(100 - P)$$

P: The prevalence of anxiety and depression (co-morbidity) among HCV patients = 8.9%¹³.

Za/2: a percentile of standard normal distribution determined by 95% confidence level = 1.96

Δ: The width of the confidence interval = 8%.

$$\text{sample size (n)} = \frac{1.96^2}{[8]^2} \times 8.9 \times (100 - 8.9) =$$

48 patients

Methods of the study

Processing of patients

Step1: Patients were examined by a hepatologist in the hepatitis outpatient clinic to determine the hepatic status of all patients and that the condition was newly diagnosed and was compensated.

Step2: All patients were interviewed using the Symptom Checklist (SCL-12-R) to determine the presence and severity of somatic symptoms.

Step3: Patients were interviewed to assess anxiety and depression using Hamilton anxiety rating scale and Hamilton rating scale for depression.

Symptom Checklist (SCL-12-R)

The Symptom Checklist is a tool concerned with the assessment of somatic symptoms. It is derived from the full version (SCL-90-R).

The ultra-short version included 12 questions assessing the somatic symptoms¹⁴.

Each question is answered by one of five answers:

- Absolutely
- Rarely
- Sometimes
- Mostly
- Always

In the present study, we used the Arabic validated version translated and validated by Dr. Abd Elrakeeb Ahmed El-Behery¹⁵.

Hamilton anxiety rating scale (HAM-A)

The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety).

Scoring: Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25-30 moderate to severe.

Hamilton rating scale for depression (HDRS)

The HDRS (also known as the Ham-D) is the most widely used clinician-administered depression assessment scale. The original version contains 17 items (HDRS17) pertaining to symptoms of depression experienced over the past week. A 21-item version (HDRS21) included four items intended to subtype the depression, but which are sometimes incorrectly used to rate severity.

Scoring: Method for scoring varies by version. For the HDRS-17, a score of 0–7 is generally accepted to be within the normal range (or in clinical remission) while a score of 20 or higher (indicating at least moderate severity) is usually required for entry into a clinical trial.

Statistical analysis

Gathered data was processed using SPSS version 15 (SPSS Inc., Chicago, IL, USA). Quantitative data was expressed as means \pm SD while qualitative data was expressed as numbers and percentages (%). Student *t*-test was used to test significance of difference for quantitative variables and Chi Square was used to test significance of difference for qualitative variables. A probability value (*p*-value) < 0.05 was considered statistically significant. Multivariate logistic regression analysis was used to quantify the studied risk factors.

Ethical considerations

1. The procedures used in the present study have no harmful effect on the patients.
2. An informed written consent was obtained from all patients before involving them in the study.
3. The steps of the study, e.g. the aims, the potential benefits and dangers were discussed with patients.
4. Confidentiality of all data was assured.

Results

This study involved 48 HCV-patients and 48 controls. The mean age of HCV patients was 53.1 ± 5.9 years compared to control subjects. Married participants represented the majority (91.7%) of subjects in each group; however, all single participants (8.3%) were in the control group and all widowed participants were in the HCV group (8.3%). Most participants in both groups were illiterate or could read and write or were idle (Table

1). Mean duration of HVC in the study group was 7.5 ± 3.2 months (ranged from 2 to 12 months).

Table 2a and 2b showed the distribution of different subjects' responses regarding somatization symptoms. Headache, fatigue, chest pain, low back pain, nausea, muscle ache, difficulty in breathing, hot and cold flushes, numbness/tingling, difficulty in swallowing and limb weakness were the more frequent symptoms mainly among HCV patients with statistically significant difference; except for chest pain. However, body weakness was a less frequent symptom in both groups (Table 2b).

The prevalence of somatization among HCV patients was 33.3% compared to 16.7% among controls.

Table 3 showed the distribution of the rating of different depression manifestations in Hamilton's Depression Rating Scale. Depressed mood, feeling of guilt, work and activities, retardation, anxiety somatic and hypochondriasis had the highest scores on Hamilton's scale in both groups with statistically significant difference. However, the remaining symptoms had lower scores.

Table 4 demonstrated that anxious mood, tension, fears, insomnia, depressed mood, somatic (muscular), cardiovascular, respiratory, and gastrointestinal symptoms had the highest scores on Hamilton's anxiety scale with statistically significant difference except for depressed mood. To a lesser extent, intellectual and behavior at interview were also more frequent with statistically significant difference.

The Hamilton rating score for depression was statistically significantly higher among HCV patients than control subjects (mean; 21.5 ± 8.7 vs. 15.4 ± 8.7 , $p=0.001$). Hamilton's rating score for anxiety among HCV patients was also statistically significantly higher than control subjects (mean; 18.4 ± 10.6 vs. 12.3 ± 9.5 ; $p=0.004$). Figure 2 compared the range and median of each scale in both groups.

Table 5 showed that there was no statistically significant relation between somatization and gender in either group. However, there was a statistically significant relation between somatization and educational level in each group; somatization was more frequent among illiterate participants (Table 6).

Table 1: Socio demographic characteristics

		HCV Group n =48	Control group n =48
Age (years)		53.1 ± 5.9	44.3 ± 12.6
Gender	Female	36 (75.0%)	36 (75.0%)
	Male	12 (25.0%)	12 (25.0%)
Marital status	Single	0	4 (8.3%)
	Married	44 (91.7%)	44 (91.7%)
	Widow	4 (8.3%)	0
Educational level	Illiterate	24 (50%)	24 (50%)
	Read and write	20 (41.7%)	16 (33.3%)
	Middle level	4 (8.3%)	8 (16.7%)
Job	Idle	40 (83.3%)	44 (91.7%)
	Employee	4 (8.3%)	0
	Worker	4 (8.3%)	4 (8.3%)

Table (2a): Patterns of somatization symptoms in both groups

Symptoms	Group	Never	Seldom	Sometimes	Usually	Always	P – value
1. Headache	HCV	4 (8.3%)	12 (25.0%)	24 (50.0%)	4 (8.3%)	4 (8.3%)	0.003 *
	Control	0	24 (50%)	24 (50%)	0	0	
2. Fatigue, dizziness, or fainting	HCV	0	0	32 (66.7%)	12 (25%)	4 (8.3)	< 0.001 *
	Control	0	12 (25%)	28 (58.3%)	8 (16.7%)	0	
3. Chest pain	HCV	12 (25%)	16 (33.3%)	4 (8.3%)	12 (25%)	4 (8.3%)	0.066
	Control	12 (25%)	16 (33.3%)	12 (25%)	8 (16.7%)	0	
4. Low back pain	HCV	0	12 (25%)	20 (41.7%)	12 (25%)	4 (8.3%)	< 0.001 *
	Control	12 (25%)	20 (41.7%)	16 (33.3%)	0	0	
5. Nausea/gastric upset	HCV	4 (8.3%)	0	16 (33.3%)	28 (58.3%)	0	0.032
	Control	0	0	20 (41.7%)	24 (50%)	4 (8.3%)	
6. Muscle ache	HCV	0	8 (16.7%)	16 (33.3%)	24 (50%)	0	< 0.001 *
	Control	4 (8.3%)	28 (58.3%)	8 (16.7%)	8 (16.7%)	0	

* Statistically significant at p < 0.05

Table (2b): Patterns of somatization symptoms in both groups

Symptoms	Group	Never	Seldom	Sometimes	Usually	Always	P – value
1. Difficulty in breathing	HCV	12 (25%)	8 (16.7%)	12 (25%)	16 (33.3%)	0	< 0.001 *
	Control	12 (25%)	16 (33.3%)	20 (41.7%)	0	0	
2. Hot and cold flushes	HCV	4 (8.3%)	20 (41.7%)	16 (33.3%)	8 (16.7%)	0	< 0.001 *
	Control	16 (33.3%)	24 (50%)	8 (16.7%)	0	0	
3. Numbness and tingling	HCV	4 (8.3%)	12 (25%)	24 (50%)	4 (8.3%)	4 (8.3%)	< 0.001 *
	Control	20 (41.7%)	16 (33.3%)	8 (16.7%)	4 (8.3%)	0	
4. Difficulty in swallowing	HCV	16 (33.3%)	16 (33.3%)	12 (25%)	4 (8.3%)	0	< 0.001 *
	Control	28 (58.3%)	20 (41.7%)	0	0	0	
5. Body weakness	HCV	8 (16.7%)	12 (25%)	28 (58.3%)	0	0	0.048 *
	Control	12 (25%)	20 (41.7%)	16 (33.3%)	0	0	
6. Limb weakness (upper/lower)	HCV	4 (8.3%)	24 (50%)	16 (33.3%)	4 (8.3%)	0	< 0.001 *
	Control	20 (41.7%)	16 (33.3%)	12 (25%)	0	0	

*Statistically significant at p < 0.05

Table 3: Patterns of depression in both groups

Items	Group	Hamilton's Depression Rating Scale					p-value
		0	1	2	3	4	
1. Depressed mood	HCV	0	16 (33.3%)	24 (50%)	4 (8.3%)	4 (8.3%)	0.002*
	Control	4 (8.3%)	28 (58.3%)	8 (16.7%)	4 (8.3%)	4 (8.3%)	
2. Feelings of guilt	HCV	24 (50%)	8 (16.7%)	4 (8.3%)	12 (25%)	0	0.002*
	Control	36 (75%)	4 (8.3%)	0	4 (8.3%)	4 (8.3%)	
3. Suicide	HCV	28 (58.3%)	12 (25%)	8 (16.7%)	0	0	0.267
	Control	24 (50%)	12 (25%)	8 (16.7%)	4 (8.3%)	0	
4. Insomnia: early in the night	HCV	4 (8.3%)	36 (75%)	8 (16.7%)	0	0	0.008*
	Control	16 (33.3%)	24 (50%)	8 (16.7%)	0	0	
5. Insomnia: middle of the night	HCV	28 (58.3%)	16 (33.3%)	4 (8.3%)	0	0	0.014*
	Control	20 (41.7%)	28 (58.3%)	0	0	0	
6. Insomnia: early morning	HCV	16 (33.3%)	12 (25%)	20 (41.7%)	0	0	<0.001*
	Control	28 (58.3%)	20 (41.7%)	0	0	0	
7. Work and activities	HCV	0	0	12 (25%)	12 (25%)	24 (50%)	<0.001*
	Control	8 (16.7%)	4 (8.3%)	24 (50%)	8 (16.7%)	4 (8.3%)	
8. Retardation	HCV	16 (33.3%)	8 (16.7%)	12 (25%)	4 (8.3%)	8 (16.7%)	<0.001*
	Control	8 (16.7%)	24 (50%)	8 (16.7%)	8 (16.7%)	0	
9. Agitation	HCV	28 (58.3%)	16 (33.3%)	4 (8.3%)	0	0	0.155
	Control	32 (66.7%)	16 (33.3%)	0	0	0	
10. Anxiety psychic	HCV	16 (33.3%)	8 (16.7%)	8 (16.7%)	12 (25%)	4 (8.3%)	0.005*
	Control	12 (25%)	24 (50%)	4 (8.3%)	8 (16.7%)	0	
11. Anxiety Somatic	HCV	0	4 (8.3%)	16 (33.3%)	16 (33.3%)	12 (25%)	0.002*
	Control	0	4 (8.3%)	28 (58.3%)	16 (33.3%)	0	
12. Somatic symptoms gastro intestinal	HCV	4 (8.3%)	16 (33.3%)	28 (58.3%)	0	0	0.211
	Control	8 (16.7%)	20 (41.7%)	20 (41.7%)	0	0	
13. General somatic symptoms	HCV	12 (25%)	16 (33.3%)	20 (41.7%)	0	0	<0.001*
	Control	36 (75%)	8 (16.7%)	4 (8.3%)	0	0	
14. Genital symptoms	HCV	44 (91.7%)	4 (8.3%)	0	0	0	0.117
	Control	48 (100%)	0	0	0	0	
15. Hypochondriasis	HCV	8 (16.7%)	4 (8.3%)	20 (41.7%)	12 (25%)	4 (8.3%)	0.014*
	Control	8 (16.7%)	16 (33.3%)	16 (33.3%)	8 (16.7%)	0	
16. Loss of weight	HCV	32 (66.7%)	16 (33.3%)	0	0	0	1.00
	Control	32 (66.7%)	16 (33.3%)	0	0	0	
17. Insight	HCV	28 (58.3%)	16 (33.3%)	4 (8.3%)	0	0	0.012*
	Control	40 (83.3%)	8 (16.7%)	0	0	0	

* Statistically significant at $p < 0.05$

Table 4: Patterns of anxiety in both groups

Items	Group	Hamilton's anxiety Rating Scale					p-value
		Not present	Mild	Moderate	Severe	Very severe	
1. Anxious mood	HCV	16 (33.3%)	12 (25%)	20 (41.7%)	20 (41.7%)	0	0.092
	Control	20 (41.7%)	12 (25%)	12 (25%)	4 (8.3%)	0	
2. Tension	HCV	0	16 (33.3%)	16 (33.3%)	16 (33.3%)	0	<0.001*
	Control	4 (8.3%)	8 (16.7%)	32 (66.7%)	4 (8.3%)	0	
3. Fears	HCV	28 (58.3%)	0	4 (8.3%)	12 (25%)	4 (8.3%)	<0.001*
	Control	36 (75%)	8 (16.7%)	0	4 (8.3%)	0	
4. Insomnia	HCV	8 (16.7%)	8 (16.7%)	12 (25%)	16 (33.3%)	4 (8.3%)	0.009*
	Control	12 (25%)	20 (41.7%)	8 (16.7%)	8 (16.7%)	0	
5. Intellectual	HCV	8 (16.7%)	24 (50%)	12 (25%)	4 (8.3%)	0	0.002*
	Control	24 (50%)	12 (25%)	8 (16.7%)	0	0	
6. Depressed mood	HCV	12 (25%)	4 (8.3%)	24 (50%)	8 (16.7%)	0	0.775
	Control	8 (16.7%)	4 (8.3%)	28 (58.3%)	8 (16.7%)	0	
7. Somatic (muscular)	HCV	16 (33.3%)	12 (25%)	4 (8.3%)	12 (25%)	0	0.007*
	Control	32 (66.7%)	4 (8.3%)	4 (8.3%)	8 (16.7%)	0	
8. Somatic (sensory)	HCV	16 (33.3%)	20 (41.7%)	12 (25%)	0	0	<0.001*
	Control	32 (66.7%)	4 (8.3%)	4 (8.3%)	4 (8.3%)	0	
9. Cardiovascular symptoms	HCV	24 (50%)	8 (16.7%)	8 (16.7%)	8 (16.7%)	0	0.002*
	Control	40 (83.3%)	0	4 (8.3%)	4 (8.3%)	0	
10. Respiratory symptoms	HCV	16 (33.3%)	8 (16.7%)	16 (33.3%)	8 (16.7%)	0	0.014*
	Control	32 (66.7%)	4 (8.3%)	8 (16.7%)	4 (8.3%)	0	
11. Gastrointestinal symptoms	HCV	8 (16.7%)	0	20 (41.7%)	16 (33.3%)	4 (8.3%)	<0.001*
	Control	0	8 (16.7%)	28 (58.3%)	12 (25%)	0	
12. Genitourinary symptoms	HCV	16 (33.3%)	32 (66.7%)	0	0	0	<0.001*
	Control	40 (83.3%)	4 (8.3%)	4 (8.3%)	0	0	
13. Autonomic symptoms	HCV	20 (41.7%)	12 (25%)	16 (33.3%)	0	0	<0.001*
	Control	40 (83.3%)	8 (16.7%)	0	0	0	
14. Behavior at interview	HCV	20 (41.7%)	20 (41.7%)	4 (8.3%)	4 (8.3%)	0	<0.001*
	Control	32 (66.7%)	0	16 (33.3%)	0	0	

* Statistically significant at $p < 0.05$ **Table 5:** Relation between somatization

Group	Gender	Somatization		P-value
		Negative	Positive	
HCV group	Female	24 (75.0%)	12 (75.0%)	1.00
	Male	8 (25.0%)	4 (25.0%)	
Control group	Female	32 (80.0%)	4 (50.0%)	0.09
	Male	8 (20.0%)	4 (50.0%)	

Table 6: Relation between somatization and educational level in both groups

Group	Education	Somatization		P-value
		Negative	Positive	
HCV group	Illiterate	16 (50%)	8 (50%)	0.012 *
	Read and write	16 (50%)	4 (25%)	
	Middle level	0	4 (25%)	
Control group	Illiterate	16 (40%)	8 (50%)	0.006 *
	Read abd write	16 (40%)	0	
	Middle level	8 (20%)	0	

* Statistically significant at $p < 0.05$

Discussion

The World Health Organization estimates that 3% of the world's population (170 million people) is infected with hepatitis C virus and is at risk of developing liver cirrhosis and liver cancer. Hepatitis C is now the leading cause of end-stage liver failure and the leading indication

for liver transplant in the developed world¹⁵. In Egypt, the estimated adjusted.

Figure 1. Box plot of Hamilton Depression Rating Scale (HDRS) and Hamilton's Anxiety Rating Scale (HAM-A) in HCV & Control group.

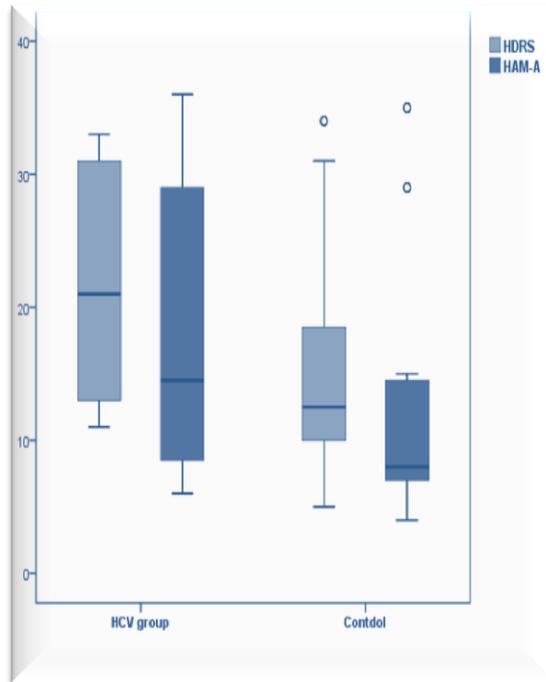
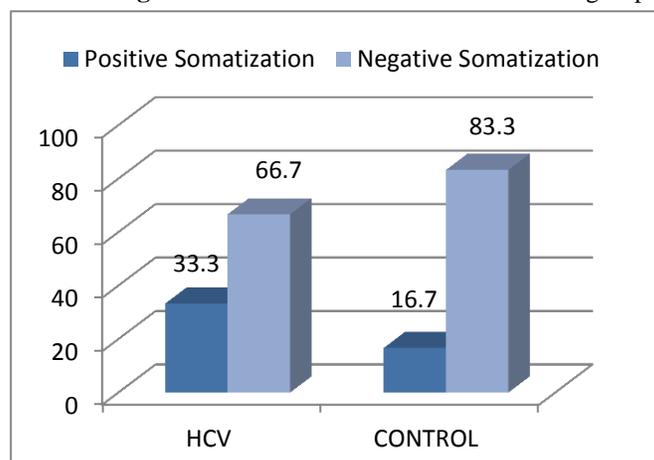


Figure 2: Somatization in HCV and control groups



The national prevalence rate of chronic hepatitis C infection was 7.8% or 5.3 million people in 2004. Only one third of these individuals (1.75 million) were estimated to have chronic liver disease (elevated ALT) and, furthermore, among these one third (577,000 people) were suffering from advanced liver disease¹⁶.

Consultation-liaison psychiatry is the clinical derivative of psychosomatic medicine which involves the practice of psychiatry within a medical care system for both hospitalized and ambulatory patients¹⁷. Active participation of psychiatry is required and even important in the management of chronic hepatitis patients. The management of such patients requires a multi-disciplinary approach and consultation-liaison psychiatrists play an important role in this teamwork.

Like many chronic medical illnesses, hepatitis C is associated with an increased prevalence of psychiatric disorders and reduced quality of life compared with the general population. However, studies of psychiatric symptoms in hepatitis C have frequently relied on self-administered scales rather than a formal psychiatric assessment making it difficult to assess the clinical significance of their findings. They have also tended to focus on depression and omit anxiety disorder or somatization. Therefore, the purpose of the present study was to assess somatization among compensated hepatitis C virus patients compared to healthy controls¹⁸.

However, the exact nature of the association between hepatitis C infection and psychiatric disorders has not been fully established and cannot be addressed with a retrospective chart review of this type. It is certainly probable that patients with psychiatric disorders are at increased risk for hepatitis C because they engage in high-risk behaviors more often than the general population^{16,17}. Furthermore, the reasons for high levels of psychiatric morbidity in persons with hepatitis C have become the subject of considerable debate. Some authors have postulated that the disease process involved in hepatitis C gives rise to psychiatric morbidity. Others have rightly pointed out that persons with hepatitis C come from population subgroups who carry a high risk of psychiatric disorder. Finally, a third line of reasoning has suggested that disease labeling, with the stigma that this entails, is responsible for the increased rates of morbidity. In particular, illness related stigma, acceptance of illness, work and social adjustment, and self-rated frequency and impact of symptoms were all associated with increased risk.

Somatization was less studied as a psychiatric comorbidity among chronic hepatitis. In the present study, somatization was more common among these patients when compared with healthy control subjects. Headache, fatigue, chest pain, low back pain, nausea, muscle ache, difficulty in breathing, hot and cold flushes, numbness/tingling, difficulty in swallowing and limb weakness were the more frequent symptoms mainly among HCV patients with statistically significant difference; except for chest pain. However, body weakness was less frequent symptoms in both groups. Moreover, there was no statistically significant relation between somatization and gender in that it was significant with educational level; more frequent among illiterate participants.

However, the literature is sparse for reported fatigue as the most common early symptom of hepatitis C, which was present in 53% HCV patients. On the other hand, fatigue has been associated with numerous psychological factors, such as anxiety, cognitive dysfunction, depression, somatization, poor social support, pain, and general psychopathology¹⁹. Moreover, fatigue is a common side effect of combination therapy; up to 77% of HCV patients receiving combination therapy complain of significant fatigue during treatment²⁰.

Findings of the present study showed that Hamilton's rating scale for depression was statistically significantly higher among HCV patients than control subjects (mean; 21.5 ± 8.7 vs. 15.4 ± 8.7 , $p=0.001$). Depressed mood, feeling of guilt, work and activities, retardation, anxiety somatic and hypochondriasis had the highest scores on Hamilton's scale in both groups with statistically significant difference (Table 3).

These findings were in accordance with those of Kenny-Walsh²¹ who reported a 16% prevalence of depressed mood noted in the medical charts of 376 Irish women with iatrogenic hepatitis C. In a retrospective review, Lee et al.²² reported that 24% of 359 untreated hepatitis C patients seen at a tertiary referral center were depressed. Kraus et al.²³ and Dwight et al.²⁴, using a standardized psychiatric interview, found a 28% prevalence in 50 patients.

Moreover, Singh et al.²⁵ found significantly more mood disturbance, tension and anxiety, confusion and bewilderment, and pain and higher Beck Depression Inventory scores in the patients with hepatitis C, none of whom had been treated with interferon. However, most studies, including the present study, have been based at

tertiary referral centers making it difficult to determine the applicability of the research to the general population.

The reasons for the high prevalence of depression in persons with hepatitis C are not clear; these have been hypothesized to arise from the disease itself, or from the high proportion of persons at risk for psychiatric disorder among those affected by hepatitis C, or to the stigmatizing nature of the diagnosis.

In our study, anxiety was assessed using the Hamilton Rating scale for anxiety. We concluded that the anxiety score was significantly higher among hepatitis C patients compared to the healthy control subjects (mean; 18.4 ± 10.6 vs. 12.3 ± 9.5 ; $p=0.004$). Moreover, anxious mood, tension, fears, insomnia, depressed mood, somatic (muscular), cardiovascular, respiratory, and gastrointestinal symptoms had the highest scores on Hamilton's anxiety scale with statistically significant difference (except for depressed mood).

These findings were consistent with those of Alavian et al.²⁶ in a case control study on anxiety and depression among HCV & HBV patients compared to healthy controls, reported a higher anxiety score (9.57 ± 3.86 vs. 7.45 ± 4.52 vs. 4.81 ± 4.80 , $p=0.001$) and depression score (6.43 ± 3.76 vs. 5.23 ± 3.74 vs. 4.76 ± 4.40 , $p=0.05$) among chronic hepatitis C patients compared to Hepatitis B patients and healthy subjects, respectively. However, they used the Hospital Anxiety Depression Scale (HADS) in their assessment.

In the same context, Golden et al.²⁷ reported that 24% of participants had anxiety disorders with a similar prevalence in both genders. The commonest anxiety disorders were panic and phobic disorders, which accounted for half of the diagnoses. There were eight participants (9%) who met the criteria for both depressive disorder and anxiety disorder. The prevalence of coexisting anxiety and depressive disorders was significantly higher in women (22%) than in men (4.5%; $P=.012$). There was no statistical association between the presence of depressive and anxiety disorders.

On the other hand, more subtle neuropsychiatric symptoms frequently occur in hepatitis C patients treated with IFN- α . These side effects are troublesome and frequently account for dose reduction or treatment discontinuation. These symptoms include cognitive, affective, and behavioral components that are not easily

distinguished from each other or from depression. In addition, fatigue and insomnia, which affect both mental and physical functioning, are prominent side effects of interferon therapy. The reported rates of depressive symptoms associated with IFN- α range from 3% to 57%, with most investigators finding proportions between 10% and 40%. However, many of these data were based on self-report questionnaires concerning general side effects rather than validated measures of depression²⁸.

Finally, the burden of psychiatric illness in patients with hepatitis C infection is of more than academic interest. Early recognition and treatment of psychiatric disorders in hepatitis is important to the course and management of hepatitis C as well as to the psychiatric disorder itself²⁹.

Limitations

- 1) The sample was drawn from a relatively homogenous group of patients attending a single hospital. However, in view of the broad agreement between our findings and those in other tertiary referral centers, it is unlikely that the sample is untypical or that the results contain important biases.
- 2) It should be borne in mind that the present study is a cross-sectional study. For this reason, longitudinal research will be needed to clarify associations.

However, our findings have important implications for the management of hepatitis C-positive individuals, particularly in light of the possible influence of psychiatric conditions on the clinical course and treatment of hepatitis C infection³⁰. Attention to these psychiatric conditions is warranted among practitioners who care for hepatitis C-infected patients with referral for psychiatric evaluation where appropriate. Likewise, vigilance for hepatitis C is warranted in patients with established neuropsychiatric illnesses. It is also incumbent upon psychiatrists, who will be asked to assess and manage these illnesses, to become familiar with hepatitis C and the implications of the psychiatric co-morbidity, which complicate this infection³¹.

Conclusions

- 1) Patients with viral hepatitis C had a higher prevalence and severity of somatization, anxiety and depression compared to normal controls.
- 2) Low educated hepatitis C patients were more vulnerable to psychiatric complaints.

According to the findings of the present study, the following recommendations should be taken into consideration:

- 1) Integration of multidisciplinary approach and active participation of consultation-liaison psychiatry in the management plan of chronic viral hepatitis C.
- 2) Further research is needed for correlation of psychiatric comorbidities with the different disease outcomes of chronic hepatitis C.
- 3) Further research is needed for characterization of causal relationship between viral hepatitis C and the psychiatric complaints.

Acknowledgements

Conflict of interest

There are no conflicts of interest

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المخلص

الطب النفسي الارتباطي مشتق من الطب النفسي السريري الذي ينطوي على ممارسة الطب النفسي في إطار نظام الرعاية الطبية لكل من المرضى في المستشفيات والعيادات الخارجية والذي يعد من المكونات الهامة في خطة علاج المرضى الذين يعانون التهاب الكبد الوبائي المزمن - ج . وتقدر منظمة الصحة العالمية حجم الإصابة بفيروس التهاب الكبد الوبائي - ج بنحو 3% من سكان العالم (170 مليون نسمة) . أما في مصر فيقدر معدل انتشار التهاب الكبد الوبائي- ج بحوالي 7,8% أو 5,3 ملايين شخص في عام 2004 . من ناحية أخرى يرتبط الالتهاب الكبدي- ج بزيادة انتشار الاضطرابات النفسية وانخفاض نوعية الحياة بالمقارنة مع عموم الناس. ولذلك ، كان الغرض من هذه الدراسة لتقييم الاضطرابات العصبية النفسية ، الإكتئاب والقلق والأعراض الجسدية ، بين مرضى التهاب الكبد الوبائي فيروس- ج مقارنة مع الأصحاء . تمت هذه الدراسة على مجموعتين متطابقتين (من حيث السن والنوع) من 48 مشاركاً في كل مجموعة احداها من مرضى فيروس (سى) والأخرى مجموعة ضابطة من الأصحاء . وقد اجريت هذه الدراسة في المستشفى التعليمي - بالمطرية . وقد اجريت مقابلات مع جميع المشاركين باستخدام استمارة مراجعة الاعراض المعدلة والتي تقيم وجود وشدة الاعراض النفسجسمية . وقد أظهرت نتائج الدراسة الحالية أن المشاركين المتزوجين تمثل الأغلبية (91,7%) من المشاركين في كل مجموعة . كما أن معظم المشاركين في كلا المجموعتين كانوا من الأميين أو ممن يقرءون ويكتبون فقط والعاطلين مع عدم وجود فروق ذات دلالة إحصائية بين المجموعتين . وكان متوسط مدة الإصابة بفيروس التهاب الكبد الوبائي فيروس التهاب الكبد الوبائي فيروس - ج في مجموعة الدراسة $7,5 \pm 3,2$ شهور (بنسب تتراوح بين 2 إلى 12 شهراً) . وقد خلصت الدراسة إلى الكشف عن ارتفاع معدل انتشار الأعراض النفسجسمية بين المرضى الذين يعانون من التهاب الكبد الوبائي الفيروسي مقارنة مع المجموعة الضابطة. علاوة على ذلك ، فإن مرضى التهاب الكبد الوبائي- ج من الإناث والغير متعلمين أكثر عرضه للإصابة.

Correspondent Author

Dr. Khaled Abd El Moez, Lecturer of Psychiatry, Faculty of Medicine, Suez Canal University, Ismailia, Egypt.
email: naomsal2012@hotmail.com

Authors

Dr. Mohamed Amin, Resident at El-Mataria Teaching Hospital, Department of Neuropsychiatry, Egypt.

Prof. Wafaa Ellithy, Professor of Psychiatry, Suez Canal University, Egypt.

Dr. Yossri Ashour, Assistant Professor of Neurology, Suez Canal University, Egypt.

Rememebering Eyad EL Sarraj
The first psychiatrist in Gaza, Palestine
Unaiza Niaz



I first met Eyad El Sarraj in 1976 when he did my locum job at The Royal Free Hospital, London. And then after three decades, in 2011, we reconnected through the LinkedIn. He invited me to join the International Resource Group of the Gaza Community Mental Health Program (GCMHP) and attend the GCMHP and the International Resource Group Conference at Aswan Egypt, in 2011. Following the conference, Eyad arranged a visit to Gaza by travelling with the GCMHP staff by crossing the Rafah Border from Cairo to Gaza. It was a memorable visit indeed!

Eyad El Sarraj was a dedicated psychiatrist, with a unique charisma, and one of the major factors in influencing mental health care in Gaza. He helped people move beyond their personal and collective trauma to recognize the basic humanity of all human beings his life's work. Human rights and mental health went hand in hand for him who, as a four year old lad, was forced to escape with his family from Bir al-Saba' (now Beersheva) to Gaza when the State of Israel was established. After Gaza and the West Bank came under Israeli occupation in 1967, his father and brothers were among the hundreds of thousands of Palestinians who were arrested and faced torture under interrogation.

In the 1970s, he studied medicine at the University of Alexandria in Egypt and then in Britain, graduating with a Postgraduate degree from the Institute of Psychiatry and King's College, London. Eyad El-Sarraj, pioneered mental health care in Gaza. He became an internationally recognized human rights advocate criticizing both the Israeli and Palestinian authorities. He rose to prominence during the first Palestinian uprising against Israeli military occupation in Gaza in the late 1980s. It was impossible to maintain sanity under the dehumanizing conditions of occupation. While the first Intifada was at its peak, Dr El Sarraj set about creating a center that would work to overcome the stigma attached to mental illness and provide family and community based treatment on a huge scale. He founded the Gaza Community Mental Health Programme (GCMHP) in 1990. The GCMHP had clinics in the refugee camps. He also established a range of training programs, crisis intervention programs, special projects that worked with children and empowered women, and a training and education department offering courses for teachers and nurses, as well as a postgraduate diploma in Community Mental Health and Human Rights.

By the mid-1990s, Dr El Sarraj had become the Commissioner General of the Palestinian Independent Commission for Citizens' Rights. When, in 1995 and then again in 1996, he criticized the human rights practices not just of the Israeli occupiers, but of the Palestinian Authority, he was arrested on three occasions and severely beaten and tortured in prison. In April 1997, when he received the first human rights award given by the Physicians for Human Rights, he said "I started as a physician in Gaza and did not want to be involved in politics, but many of my patients were victims of torture and I became drawn into advocacy. Defending human rights is my major obsession."

Amongst his innumerable important positions, he was a consultant to the Palestinian delegation at the Camp David 2000 Summit. He is featured in the book *Army of Roses* by journalist Barbara Victor about Palestinian female suicide bombers. In the Palestinian elections of 2006, he headed the Wa'ad list of candidates, also known as the National Coalition for Justice and Democracy. He also headed a group of Palestinian and Israeli academics working towards a peace agreement. Dr El Sarraj focused in particular on the traumatic effects of the Israeli-Palestinian conflict on children Israel. He described the psycho-traumatic effects on children in 2009 during a three-week offensive by Israeli forces in Gaza after years of rocket fire from there against southern Israel.

“Many children in Gaza are wetting their beds, unable to sleep, clinging to their mothers,” he wrote. “Worse are the long-term consequences of this severe trauma. Palestinian children in the first Intifada 20 years ago threw stones at Israeli tanks trying to wrest freedom from Israeli military occupation. Some of those children grew up to become suicide bombers in the second Intifada 10 years. Nancy Murray said of him: “His courage, decency, independence of mind, and vision of a better world made him a beacon of moral conscience and hope for those Israelis seeking peace with Palestinians and Palestinians struggling with both the occupation and their own ruinous political divisions.”

These qualities earned him respect across the political spectrum and considerable international recognition (as substantiated by the film *The Gatekeepers*). In addition to the 1997 Physicians for Human Rights Award, he was awarded the Martin Ennals Award for human rights defenders in 1998. In 2010, when he was already struggling with terminal illness (multiple myeloma) he was awarded the Olof Palme Prize for his “self-sacrificing and indefatigable struggle for common sense, reconciliation and peace between Palestine and Israel” and the Juan Jose Lopez-Ibor Prize in Psychiatry. There was a feature story about Dr El Sarraj in the Canadian magazine *Equinox*, published in February 1995, which illustrates this quality: “He was once stopped during the Intifada and ordered by an Israeli soldier to extinguish flames from a burning tire with his bare hands. He refused the order. When the soldier threatened to take his identification card, el-Sarraj didn’t protest. ‘Go ahead, take it, I don’t care,’ he said. And when the soldier threatened to beat him, el-Sarraj said, “Go ahead, but before you do, I know there is a real human being behind that uniform, and I would like you to show me that person.’ The soldier got tears in his eyes, and then he just walked away.”

Another quality worth mentioning is that he was a prolific writer. His narratives are worth reading. He wrote innumerable articles in both professional journals and for the lay press. He had done seminal work on trauma in children and adolescents contributing numerous chapters in different books in psychiatry. Fluent in English, Dr El Sarraj achieved international respect. His Gaza City home was familiar to foreign diplomats, researchers and journalists seeking his opinions. Speaking at Dr El Sarraj’s funeral in Gaza, Ismail Haniya, the Prime Minister of the Hamas government, described him as “a meeting point for all Palestinian people,” adding, “He is going to be missed by Palestine and Gaza because he was born and lived for them.” Rami Hamdallah, the Prime Minister of the Palestinian Authority government, said Dr. El Sarraj’s achievements would remain as “a beacon for the continuation of the march” of the Palestinian people toward an independent state. Robert H. Serry, the United Nations special coordinator for the Middle East peace process, described Dr El Sarraj in a statement as “someone who persistently stood on the side of human rights, peace and justice.”

Politically independent, Dr El Sarraj championed nonviolence and democracy. In recent years, he was involved in trying to promote reconciliation between Hamas, the Islamic militant group that controls Gaza, and its rival Fatah, the mainstream party led by Mahmoud Abbas, the President of the Palestinian Authority in the West Bank. Those efforts have so far been unsuccessful. Issam Younis, director of the Mezan Center for Human Rights in Gaza, said Dr El Sarraj had displayed a “gentlemanly antagonism” in tackling major issues and national concerns. The failure to reconcile the Palestinian schism “left his heart aching because he was not used to failure, Dr. Eyad El Sarraj leaves behind a bereaved Palestine, a grieving family and friends around the world who will miss him deeply. May Allah rest his soul in peace.

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