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I hope this will help the international spread of articles published in the AJP

Walid Sarhan

May 2013

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Depression and anxiety among Saudi University students: prevalence and correlates

Mostafa Amr , Tarek Tawfik Amin, Sahoo Saddichha, Sami Al Malki, Mohammed Al Samail , Nasser Al Qahtani, Abdulhadi AlAbdulHadi, Abdullah Al Shoaibi,

القلق والإكتئاب بين طلاب الجامعة السعوديين : الانتشار والمصاحبات

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Abstract

B **ackground:** Mental health problems among college students represent an important and growing public health concern for which epidemiological data are needed. **Objectives:** This cross-sectional study aimed to estimate the prevalence of mental health problems among undergraduate college students at King Faisal University, Saudi Arabia and to determine the socio-demographic and other potential correlates for mental health problems. **Materials and Methods:** A total of 1696 undergraduate students of both genders from ten colleges at King Faisal University were selected using a random sampling method. Participants were assessed for depression and anxiety using the Patient Health Questionnaire (PHQ) anonymously. Information was also collected for the socio-demographics, presence of chronic disease conditions and other potential correlates as financial, personal and family problems. **Results:** The prevalence of symptoms of any depression or anxiety was 21.9%. Symptoms of major depression were present in 9.9%, other depression in 19.4% and any depression among 24.4%. Panic and generalized anxiety symptoms were found in 4.0% and in 14.0% respectively. Suicidal ideation in the past four weeks was reported by 1.1% of students. Major depression and anxiety were significantly higher among females. Multivariate regression logistic models revealed that the type of college (nature of received education), female gender, financial and personal problems were significant predictors for major depression. **Conclusion:** These findings highlight the need to address mental health problems in young adult populations, particularly among those of lower socioeconomic status.

Keywords: Depression, anxiety, university students, correlates.

Declaration of interest: None

Introduction

College students are particularly prone to stress due to the transitional nature of college life. For example, many college students move away from home for the first time and need to develop entirely new social contacts and are expected to take responsibility for their own needs. They may have difficulty adjusting to more rigorous academic expectations and the need to learn to deal with individuals of differing cultures and beliefs.¹ Severe stress reactions may therefore result as a nature of their appraisal and response towards the change, manifesting as differing mental health problems.² Assessment of stress, anxiety and depression among college students is an area of research need, which has been examined in several studies.^{3,5}

Although most studies of psychiatric morbidity among college students have been conducted in Western countries, there is a paucity of literature available from the Middle East. Depression among high school students has been observed to range between 14-33%, anxiety between 30-49% and stress around 35%^{6,8}, with risk factors being gender, birth order, history of psychiatric

illness, history of relative loss, and familial history of chronic diseases.⁶ However, it has also been suggested that determinants of depression among students may differ between cultures due to varying rates of societal change.⁹ In addition, socio-economic backgrounds may also play a role.^{10,11}

With the dearth of research, it can be implied that an improved understanding of mental health among college students in Saudi Arabia might be readily translated into multiple campuses and thus reach a large proportion of the young adult population in Saudi Arabia. The present large scale epidemiological study was designed to assess the prevalence and pattern of depression/anxiety among college students. In this context, the study objectives were to estimate the prevalence of mental health problems (particularly depression and anxiety) among college students at King Faisal University, Saudi Arabia and to determine the correlates of these symptoms among them.

Methods

Setting

The Kingdom of Saudi Arabia (KSA) has a population of 28 million people and is one of the countries experiencing demographic transition in its population structure. King Faisal University in Al-Hassa is located in the Eastern province of KSA. The campus contains 10 colleges: Agricultural Science, Education, Veterinary, Management Sciences, Science, Computer and Information Technology Science, Medicine, Clinical Pharmacy, Engineering and Applied Community Science. With the exception of Management, Veterinary and Engineering Colleges, both genders are enrolled in the rest of the included colleges. The total student population enrolled in the University according to registries for the academic year 2009 was around 13800.

Study design and sampling: A cross-sectional descriptive study design was used where the sampling frame consisted of all students of both genders at different colleges and grades were the target population. Using the Epi-Info 2002 software, considering the total population of 13800, assuming the prevalence of depressive symptoms to be 15%^{10,11} with a precision of $\pm 3\%$, and applying a confidence level of 95%, the total number of subjects required for completion of our study was 1600, which accounted for about 13% of the enrolled students at the University. A multistage proportionate sampling method was therefore applied. Colleges included were stratified according to the scope of specialty and number of enrolled students. A sampling fraction was calculated to select participants in relation to the population in each college. For each college, students were chosen using a systematic random sampling technique (using the academic identification number) from the available registries.

Measures

The present study focuses on the measures related to depression, anxiety and suicidality. A clinically validated screening instrument, the Arabic version of the Patient Health Questionnaire (PHQ), was used to estimate the prevalence of current depression and anxiety. Suicidal thoughts and behavior were assessed using questions from the National Comorbidity Survey Replication.^{12,13} Depression was measured using the Patient Health Questionnaire-9 (PHQ-9), a nine-item instrument based on the nine DSM-IV criteria for a major depressive episode. This instrument asks the respondent to indicate the frequency of various symptoms over the past two weeks. Following the standard algorithms for interpreting the PHQ-9¹⁴, we categorized students as screening positive for major

depression, other depression (this includes less severe depression such as dysthymia or depression (not otherwise specified), or neither. This screening tool has been validated as being highly correlated with diagnosis by mental health professionals^{14,17} and other depression assessment tools^{18,21} in a variety of populations. Anxiety was also measured using items from the PHQ. These items ask about symptoms of panic and generalized anxiety over the past four weeks¹⁴, three questions from the National Comorbidity Survey Replication¹² were used to assess suicidality in the past four weeks. These questions asked whether in the past four weeks the respondent ever seriously thought about committing suicide, made a plan for committing suicide, or attempted suicide.

Potential risk factors: We examined associations between mental symptoms and the socio-demographics including gender, age, living situation (with or away from the family), residence (rural, urban), educational status of the parents, family income and current financial situation. Also, the presence/absence of interfamily conflict or problems was inquired.

Questionnaire administration

The survey was fielded in October-December 2010. The timing of the study was chosen to avoid the beginning and end of the semester when students are typically undergoing a variety of stresses associated with moving, settling into a routine, or preparing for exams and projects. Those selected received proper orientation regarding the contents and objectives of the study with reassurance of their right not to participate. Participants completed a self-administered paper-based baseline questionnaire in Arabic. Research assistants were available to help students to understand unfamiliar terms (if any).

Statistical analysis: Collected data were processed and analyzed using SPSS 16 (SPSS Inc. Chicago, IL, USA). Forms missing one or more items were discarded ($n=71$). Diagnoses of depression and or anxiety were based on the allocated algorithm proposed by other validating studies.^{13,14} For categorical data, frequency, percentage and proportion were used for expression, Chi square and Z-tests were used to compare groups. For numerical data, mean, median and standard deviation were established via Mann-Whitney, Kruskal Wallis tests for comparison between numerical variables. Multivariate logistic regression analysis models were generated to determine the potential correlates (independent) in the form of

socio-demographics, financial, chronic morbidities, family and educational problems in relation to the presence of depression /anxiety (dependent variable). P value of < 0.05 was used to indicate statistical significance.

Results

The sample comprised 1696 undergraduate students from 10 colleges. Their age ranged from 19 to 27 years with a mean of 20.75 years (Table 1). Most students were from an urban background (64%), with both parents having been educated at least to the secondary school level and

having a family monthly income of more than 6000 SRs (56.8%). Most were single (91.7%), with approximately a quarter reporting financial and study problems (27.9% and 26.1% respectively). Chronic illnesses were reported by 10.5% and included bronchial asthma (42), sickle cell disease (36), nutritional anemia and under nutrition (31), hypertension (17), G6PD hemolytic anemia (14), diabetes mellitus (14), thalassemia (6), chronic eczema (6), goiter (4), cardiac problems (3), epilepsy (3) and peptic ulcer (2). Females, however, reported more financial problems and fewer academic issues.

Table 1 Socio-demographics of sample in relation to gender

Variables	Students by gender			Total (N=1696) No. (%)
	Males (N=1072) No. (%)	Females (N=624) No. (%)	P (χ^2 /T-test)	
- Age (in years): Mean \pm SD	20.9 \pm 1.9	20.5 \pm 1.7		20.8 \pm 1.9
- Residence:				
Urban	692(64.6)	399(62.0)		1091(64.3)
Rural	362(33.7)	218(34.9)	0.603	580(34.2)
Desert	18(1.7)	7(1.1)		25(1.5)
- Father education:				
< Secondary	478(44.6)	257(41.2)	0.154	735(43.3)
\geq Secondary	594(55.4)	367(58.8)		961(56.7)
- Mother education:				
< Secondary	568(53.0)	287(46.0)		855(50.4)
\geq Secondary	504(47.0)	334(54.0)	0.007*	838(49.6)
- Living away from the family:	174(16.2)	83(13.3)	0.104	257(15.2)
- Family income in SR:				
< 3000	149(13.9)	84(13.5)		233(13.7)
3000-6000	302(28.2)	197(31.5)	0.120	499(29.4)
> 6000	621(57.9)	343(55.0)		964(56.8)
- Married:	36(3.4)	104(16.7)	0.001*	140(8.3)
- Chronic illnesses:	111(10.4)	67(10.7)	0.804	178(10.5)
- Study problems:	315(29.4)	127(20.4)	0.001*	442(26.1)
- Financial problems:	278(25.9)	195(31.3)	0.001*	473(27.9)
- Domestic /family problems:	159(14.8)	97 (15.5)	0.692	236(13.9)

* P < 0.05

On the PHQ-9 (Table 2), any depression (dysthymia and minor depression) was reported by nearly a quarter, with females reporting greater rates of any depression (27.9%) and major depression (15.1%). Anxiety symptoms were reported in 18% of the sample (symptoms of panic and generalized anxiety were found in 4.0% and in 14.0% respectively), with no significant gender differences observed. Suicidal ideation was reported in just 1%, being more among female than males. Of those who screened positive for at least one of the conditions described above (major depression, other depression,

Symptoms of panic or generalized anxiety, and suicidal thoughts), 26.4% screened positive for at least one more of these conditions. Co-morbid pairs of these mental health problems showed strongest associations between generalized anxiety and major depression (59.3% of those who screened positive for generalized anxiety also screened positive for major depression) and between suicidal thoughts and depression (49.2% of those with suicidal thoughts screened positive for major depression and 24.1% screened positive for other depression).

Table 2 Prevalence as assessed by Patient Health Questionnaire in relation to gender

Variables	Total population (N=1696) No. (%)	Gender		P valu
- Depression (PHQ-9):		Males (N=1072) No. (%)	Females (N=624) No. (%)	
Major depression	168(9.9)	74(6.9)	94(15.1)	0.001*
Other depression**	329(19.4)	201(18.8)	128(20.5)	0.411
Any depression (PHQ-9)	413(24.4)	239(22.3)	174(27.9)	0.011*
- Anxiety (PHQ):				
Panic	67(4.0)	41(3.8)	26(4.2)	0.948
Generalized anxiety	237(14.0)	158(14.7)	79(12.7)	0.263
Any depression or anxiety (PHQ)	371(21.9)	213(19.9)	158(25.3)	0.010*
- Suicidality				
Ideation	19(1.1)	6(0.6)	13(2.1)	0.259
Plan	3(0.2)	3(0.3)	0 -	-
Attempt	0 -	0 -	0 -	-

* Includes minor depression, dysthymia.

Logistic binary regression model demonstrated significant predictors for the development of major depression (Table 3) including nature of the educational stream (more among medical and science students), gender (more among females) and the presence of

financial, educational and personal problems being significant positive predictors. Any depression or anxiety was also correlated with similar variables with the exception of financial problems.

Table 3 Multivariate logistic regression models of depression and anxiety among KFU students in relation to independent socio-demographics and other potential correlates

Any Depression / Anxiety		Any depression		Major depression		Independent variables
Odds ratio (95% C.I)	B	Odds ratio (95% C.I)	B	Odds ratio (95% C.I)	B	
1.05(1.01-1.09)*	.047	1.03(1.00-1.10)*	.092	1.01(1.01-1.40)*	.069	College
1.66(1.25-2.21)*	.506	1.36(0.99-1.86)	.308	2.12(1.303-4.4)*	.750	Gender
0.89(0.74-1.07)	-.115	0.98(0.79-1.21)	-.078	1.73(1.00-3.06)*	.547	Financial problems
2.60(1.98-3.42)**	.956	2.27(1.68-3.05)**	.818	2.26(1.42-3.61)*	.816	Study problems
2.11(1.62-2.76)**	.748	1.87(1.39-2.52)**	.627	2.12(1.29-3.48)*	.751	Family problems
1.17(0.79-1.72)	.154	1.16(0.78-1.51)	.153	1.14(0.59-1.41)	.295	Family problems
-1.79		-2.56		-2.36		Constant
	130.21		72.63		56.61	Model χ^2
75.7		86.7		93.1		Percent predicted

B = beta coefficients, C.I= Confidence intervals.

Colleges (Science including, Medicine, Science, Pharmacy, Veterinary, and agriculture =1 vs. others =0), gender (males=0, females =1), Financial problems (yes=0, no=1), study problems (1=yes, 0=no), family and personal problems (1=yes, 0=no), chronic disease problems (1=yes, 0=no),

* P value = 0.05, ** P= 0.001

Discussion

The present study aimed to map depression, anxiety and suicidal ideation among a large sample of college going adults at King Faisal University, Saudi Arabia. We found that one in ten and one in five students were screened positive for major or any depression respectively; also, one in five students were positive for any anxiety, and about 1.1% of students reported suicidal thoughts in the

past four weeks. The prevalence of depressive symptomatology as observed by the PHQ in our study was detected to be 24.4%. This is higher than other studies from similar socio-cultural backgrounds. Saddichha et al., 2010¹⁴ reported the prevalence of depression among young adults in Ranchi city of India as observed by the Depression, Anxiety, and Stress Scale (DASS) was detected to be 18.5%. Similarly, Unsal and

Ayranci, 2008¹⁵ reported that one third of Turkish high school students had depression employing the Beck Depression Inventory; however, an Egyptian study found the prevalence of depression among Egyptian medical students to be 18.3%.¹⁶ On the contrary, anxiety symptoms were detected in 18% of the participants which is far lower than an earlier study in Saudi Arabia, which reported 49% prevalence of anxiety symptoms among youths.⁸

Such differences may be attributable to either the different tools used or due to socio-cultural differences and different understanding of concepts such as self-evaluation, social self-confidence, and adaptive behavioral styles.¹⁴

In the present study, suicidal ideation was found in about 1% of the college students which was found to be lower than other studies such as that carried out by Garlow et al., 2008¹⁷, who found that the 11.1% of American students endorsed current suicidal ideation and 16.5% had a lifetime suicide attempt. A study carried out in United Arab Emirates (UAE) among college students reported the prevalence of lifetime suicidal ideation was 17.5% and of suicide attempts 1.8%.¹⁸ This is not surprising since Saudi Arabia is a traditional conservative society with strong beliefs that self-inflicted deaths are blasphemous and punishable in the afterlife. The socio-economic transformation and the lifestyle changes witnessed during the past three decades in Saudi Arabia were moderate when compared with the UAE.⁸

Further, we also observed higher co-morbidity of both symptoms of generalized anxiety and major depression (59.3% of those who screened positive for generalized anxiety were also screened positive for major depression) and between suicidal thoughts and depression (49.2% of those with suicidal thoughts screened positive for major depression and 24.1% screened positive for other depression). This is consistent with other studies which showed that anxiety was the most common co-morbid with depression in youth and that feelings of desperation were strongly associated with suicidal ideation.^{19,20} Moreover, Alansari 2005,²¹ administered the Kuwait University Anxiety Scale and the Beck Depression Inventory II to a sample of college students from Arab countries.¹⁸ He reported that depression is positively significantly correlated with anxiety. In investigating suicidal behavior and attitudes among medical students in United Arab Emirates (UAE), Amiri et al. 2012¹⁸ reported that sadness was associated with higher

acceptability of suicide and fewer beliefs in punishment after death in a sample of medical students from UAE.

In the present study, male students were significantly more likely to suffer from depression and anxiety. This result is similar to findings of previous studies. Dahlin et al., 2005²² reported that the prevalence of depressive symptomatology was 16.1% among female Swedish students versus 8.1% among male students. Also, Amr et al. 2008 have reported similar findings from Egypt, which stated that female students had higher depression and neuroticism scores than male students. In developing countries, women are more likely to experience depression and anxiety than men. The most likely explanation of gender differences is multifactorial, including biological, socio-cultural, or variable combinations of each.²⁴

The comparatively higher rates of depression and anxiety among medical and science students are, however, consistent with other studies.^{22,23} This finding may be due to the nature of the study and the stress associated with the frequent examinations in addition to the competitive learning environment, which pushes students to do their best to score higher.²⁵ Another plausible explanation is that medical students are described as having personality traits of obsession, self-doubt, high self-criticism, guilt, extreme fear of failure and making mistakes, and also may experience an exaggerated sense of responsibility and strive to achieve.²⁶ All of these previously mentioned factors might make the medical and science students more vulnerable to developing depression and anxiety.

The present study also observed that students who reported financial/educational problems were substantially more likely to screen positive for depression or anxiety and that this was a major predictive factor.¹⁴ Financial problems were associated with increased psychological distress. One explanation for this pattern is that individuals lower down on the socioeconomic status ladder have fewer psychological resources for meeting the stress of the increasingly more challenging environment that may negatively impact physical and psychological well-being.²⁷ In a similar vein, Liu et al. 1999,²⁸ showed that poor health status, test pressure, conflict with classmates and the personality trait of introversion were independently associated with the presence of anxiety.

These results demonstrate that college education, although laying the foundation for a successful career

ahead, may be associated with significant perceptions of depression and anxiety. Further, the presence of financial problems reflects socioeconomic disparities in mental health existing even within a setting that is often thought of as representing a privileged segment of society. However, a few factors were associated with significantly lower risks of mental health problems and may therefore represent protective factors. Two of these factors are related to social support: living with family and being married. Since many studies have shown strong correlations between being married, social support and better mental health^{29,30}, it can only be inferred that being in a supportive significant relationship could indeed protect one from the stresses of college education. Yet, the most significant finding in the present study has been the high rates of both depression and anxiety. Further assessment is needed employing standardized structured interviews to establish a definite diagnoses leading to strategies to pay attention to these symptoms among students so that they might serve as an indication to take preventive action against future distress.

Limitations of the study

Although our study is by far, the largest epidemiological study among college students from this part of the world, we acknowledge the cross-sectional design as being one of the limitations which may not point to past or future trends. Furthermore, the findings of the present study are based on self-reported information provided by students with room for reporting bias to have occurred because of respondents' interpretation of the questions or desire to report their emotions in a certain way or simply because of inaccuracies of responses and lack of proper duration of symptoms that appear necessary to establish a definite diagnosis with confidence. Further assessment using a standard structured interview like the Mini International Neuropsychiatric Interview (MINI) is required. However, this does not take away the significance of our findings and we believe that public health surveys should actively target this population, which has been neglected so far in Middle Eastern countries.

Conclusion

The present study provides empirical evidence regarding the psychological health of students in our university. These findings suggest the existence of high levels of psychosocial distress exists among the university's students, especially during the initial years of their course, and pose additional challenges for students' support services delivery. These findings highlight the need to address mental health problems in young adult

populations, particularly among those of lower socioeconomic status.

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المخلص

الخلفية: تعكس مشاكل الصحة العقلية بين طلاب الجامعات اهتماماً متزايداً بالصحة العامة والحاجة لمعرفة الحالة الوبائية وتهدف هذه الدراسة المستعرضة إلى تقدير مدى انتشار مشاكل الصحة العقلية بين طلاب جامعة الملك فيصل، المملكة العربية السعودية وتحديد المصاحبات الاجتماعية والديموغرافية. **الادوات والطرق:** تمت الدراسة على 1696 طالب من عشر كليات من خلال إختيار عينة عشوائية متعددة المراحل في جامعة الملك فيصل، المملكة العربية السعودية وتم تقييم المشاركين النفسي باستخدام استبيان صحة المريض و تم جمع معلومات عن التركيبة السكانية والاجتماعية والأمراض المزمنة وظروف أخرى محتملة ترتبط بالمشاكل المالية والشخصية والأسرية. وقد أبرزت النتائج أن نسبة انتشار أي من أعراض الإكتئاب أو القلق 21.9٪، والإكتئاب الجسيم 9.9٪، والإكتئاب الآخر 19.4٪ و أي إكتئاب 24.4٪. والهلع 4.0٪ و القلق العام 14.0٪ والتفكير في الإنتحار 1.1٪. ووجد أن أعراض الإكتئاب الجسيم و القلق كانا أعلى وذو دلالة احصائية بين الإناث. وكشف الإنحدار المتعدد المتغيرات أن نوع الكلية (طبيعة التعليم الذي يتلقاه) والجنس الأنثوي، ووجود حالات المرض المزمنة والمشاكل المالية و الشخصية كانت منبئة للإكتئاب الجسيم. **الاستنتاجات:** تسلط هذه النتائج الضوء على الحاجة إلى معالجة مشاكل الصحة العقلية بين الشباب البالغين، ولا سيما بين أولئك ذوي المراتب الاجتماعية والاقتصادية المتدنية.

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Depression and coronary artery disease: review of the literature

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ألاكتئاب وامراض شرايين القلب التاجية مراجعة الأدبيات الطبية

رضوان علي بني مصطفى

Abstract

A Comprehensive review of the literature regarding depression and coronary artery disease based on PubMed database was performed. Depression and coronary artery disease (CAD) are common health problems, which are often co-morbid. The World Health Organization (WHO) has estimated that by the year 2020 depression and CAD will be the first two leading causes of disability in the general population. This co-morbidity has been known for decades, but the modern understanding of the relationship can be traced to the mid-19th Century. Research in the 20th Century found that the relationship between depression and CAD is bi-directional. Several psychosocial risk factors contribute to the development of cardiovascular disease and influence the course of those who have it. Risk factors include anger, hostility, social isolation, stress, anxiety and depression.

Similar strong associations were thought to exist between cardiovascular disease and personality traits known as type A or type D personalities. The explanation of the relationship between depression and CAD is multifactorial. It involves noradrenergic and hypothalamic pituitary adrenal cortical system, autonomic nervous system, platelet activation and inflammatory process. The first line of treatment for depression in patients with CAD is the SSRI class of antidepressants. Treating depression in CAD patients improves outcomes. It is of great importance that physicians who treat cardiac patients should be able to diagnose and treat depression in their patients, which may result in better prognosis.

Key Words: Depression, coronary artery disease, SSRIs.

Declaration of interest: None

Introduction

Depression was described by Hippocrates as Melancholia some 2,500 years ago. It was one of the first medical disorders to be fully described as a clinical entity. The condition primarily manifests in a triad of symptoms with its correlates: sadness, lack of pleasure and low level of energy. Lifetime prevalence is 15-20%,^{1, 2}; prevalence in women with median age of onset of 25 years³. Among adults above 20 years of age, the prevalence of CAD is 8.6% in men and 6.8% in women; with age the prevalence increases, especially in men⁴. Traditional risk factors, such as diabetes, hypertension, hypercholesterolemia and obesity also increase risk as do socioeconomic and psychological factors⁵.

For many years, patients with cardiac disease have been thought to have characteristic psychological features. However, the modern understanding of the relationship between mood disorders and the heart can be traced to the mid-19th Century with the publication of Williams' text book regarding 'nervous and sympathetic palpitations of the heart.'⁶ This finding was investigated in the late 1800s by several researchers who emphasized the concept of neurologically-based, or 'neurasthenic', cardiac disorders. In 1910, Osler described his typical

patient with angina pectoris as 'a man whose engine is always set at full speed ahead' and further noted his patients with cardiac disease to be 'worriers'⁷. Menninger and Menninger, in early psychoanalytic studies, described a characteristic tendency to suppress anger among patients with CAD⁸, as did Dunbar, a pioneer of psychosomatic medicine⁹. Wolf's 1969 lecture 'Psychosocial forces in myocardial infarction and sudden death,' addressed the phenomenon of 'joyless striving' among patients with heart disease¹⁰.

The results of work conducted in the 20th Century suggested that several psychosocial risk factors contribute to the development of cardiovascular disease and influence the course of those who have it. These risk factors included anger¹¹, hostility¹², social isolation¹³, stress, anxiety and depression^{14, 15}. Similar strong associations were thought to exist between cardiovascular disease and personality traits known as type A or type D personalities^{16, 17, 18}. Positive association was found in Arab patients with acute MI by Emara et al. in 1986¹⁹. Hakemia found a positive association between painful cardiac ischemia and type A personality, but not in type B personality in Iraqi patients during daily life activities²⁰. A recent study on post-

myocardial infarction (MI) depression concluded that post-MI depression was associated with increased hospital admissions for cardiac reasons and with the adoption of reduced secondary preventive behaviors due to depression. These results have implication on prognosis, quality of life and health costs²¹.

In contrast to research results which associate depressive somatic symptom clusters with CAD, a recent study concluded that depressive mood cluster is more predictive of CAD in depressed individuals²². Mental disorders and coronary heart disease are both significant public health issues due to their high prevalence and considerable contribution to global disease burden. The 2001 Global Burden of Disease (GBD) study ranked unipolar depressive disorders as the third leading cause of disease burden, rising to first place for high- and middle-income countries. The WHO estimates that by the year 2020, depression and CAD will be the first two leading causes of disability in the general population²³. Ischemic heart disease (IHD) is a major cause of disease burden, which is ranked fourth globally and second in high- and middle-income countries²⁴.

Despite this high ranking, the burden of depression may still be underestimated because of inadequate appreciation of the links between depression and other health conditions, such as IHD²⁵. A number of recent cohort studies have contributed to the growing body of evidence for links between mental disorders and cardiovascular disease. The largest body of work in this area has been done on the association between major depressive disorder (MDD) and coronary heart disease (CHD) with results implying the existence of a robust association.^{26,27,28} Despite the enormous literature which associates CAD with depression, most risk factors do not fully account for all the variations in outcome studies. There is a lack of definitive correlation between high-risk profiles, biological profiles, and the occurrence of CAD.

Bi-directional relationship of depression and CAD

Cross-sectional and longitudinal data suggest a bi-directional link between depression and CAD. In previous cross-sectional studies, between 19-66% of patients with acute (MI) have psychiatric disorders mostly depression and anxiety.^{29, 32} Several recent studies found that 17-44% of patients with CAD have depression^{33,35}. One study found that 27% of patients had depression after coronary bypass surgery³⁵ while

another study found that a history of MI was independently associated with hospital depression. The high prevalence of depression in these studies becomes significant when compared to 6.6% one-year prevalence of depression in the general population³⁶. The role of depression in the pathogenesis of CAD has been examined in many longitudinal studies^{37,39}, which support the theory that depression is an independent risk factor development of CAD and its subsequent complications.

Depression and sudden cardiac death

In a study of 222 patients admitted to hospital with acute MI and assessed for depression on admission at one week, six months and twelve months post-MI, it was reported that there were 21 deaths over the 18 month post-MI period. All were associated with depression⁴⁰. The onset of acute MI is often preceded by a syndrome of low energy, general weakness, and mild depression⁴¹. In a large prospective follow-up study of 4,367 patients over 60 years of age suffering from systolic hypertension, the risk of death was associated with progressive increase in depressive symptoms during an average follow up time of 4.5 years⁴². Previous history of depression is a predictor of congestive heart failure after an acute MI⁴³. A cohort study of the Epidemiologic Catchment area (ECA) in Baltimore, USA found patients with a history of dysphoria or depression to have 4.5 times greater risk of having an acute MI at follow-up compared with non-depressed patients; this finding was independent of the coronary artery risk factors⁴⁴.

Several studies suggested that patients who experience depression after an MI were at higher risk of sudden cardiac death (SCD). In another USA study conducted from 1980 to 1994, a Washington state Health Maintenance Organization (HMO) studied 2,228 patients with depression against a control group of 4,164 patients. Patient age in both groups was between 40 and 79 years. The study found that the presence of depression and its severity in patients is associated with higher risk of cardiac arrest resulting in death and concluded that depression is an independent risk factor for SCD⁴⁵. In a Canadian study of SCD risk in 671 patients, elevated depressive symptoms were a predictor of increased SCD³⁷. Other studies^{37, 45,48} strongly support the conclusion that patients with history of depression are more vulnerable to SCD. Depression increased all causes of cardiac mortality in the Mini-Finland Health Survey, which examined the association between depression and cardiovascular disease (CVD); 8,000 healthy adults were

followed for a mean of 6.6 years. Patients with depression showed an increase in all causes of mortality, which was twice as high when compared to patients without depression. There is ample evidence that depression increases morbidity and mortality following MI^{40, 48, 53}.

Another important study in this area involved 222 patients whereby depression was evaluated 5 and 15 days post-MI. Depression was associated with more than a four-fold increased risk of mortality during the six-month follow up⁵⁰. De Jong et al. looked at data from two studies in the Netherlands - the myocardial infarction depression trial (MIND IT) and a study on depression after MI. The relationship between depressive symptom dimensions was studied after an MI and both prospective cardiovascular prognosis and somatic health status. The study linked three depression symptom dimensions to baseline somatic health and cardiovascular prognosis. The cognitive/affective dimension was unrelated to baseline health status whereas somatic/affective and appetite dimensions were associated with cardiovascular events. The somatic/affective symptoms had the strongest relationship with baseline health status⁵⁴.

Rumsfeld et al.⁴⁰ studied whether depression predicts mortality in patients with acute MI complicated by heart failure. Results showed that depressed patients had higher two-year mortality rates (29% vs 18%, $p=0.004$) and cardiovascular death or hospitalization (42% vs 33%, $p=0.016$). Depressive symptoms were significantly associated with mortality after adjusting for risk factors and cardiovascular death or hospitalization. Depression contributes to unhealthy lifestyle and poor adherence to treatment and medical advice, which may have impacted on cardiovascular disease outcome. DiMatteo et al. concluded that depression has a significant relationship to poor adherence to treatment recommendations⁵⁵. Depressed patients are also more likely to adopt an unhealthy lifestyle, such as smoking, sedentary lifestyle, drinking alcohol and non-adherence to prescribed medications^{56, 58}. Depression is associated with poor secondary prevention behaviors, such as exercise, quitting smoking⁵⁹, and obesity⁶⁰.

How depression affects the heart

The link between depression and CAD is a complex and multifaceted issue. There is growing evidence that several pathophysiological links may explain the effect of depression on the cardiovascular system and how these factors end up causing CAD. Current research is

focusing on several mediators to identify how these mediators are activated by depression.

Hyperactivity of noradrenergic and hypothalamic pituitary adrenal cortical system.

This is one of the links that may explain the association between depression and CAD. Sympathetic outflow is increased in depressed patients when compared to non-depressed through negative stress effect of catecholamines on the heart, blood vessels, and platelets⁶¹. Further support of the catecholamines association with depression is the increased urinary catecholamines levels, which are associated with negative emotions and decreased social support^{61, 63} and high norepinephrine while low platelets serotonin are associated with MI and depression.

Depression also affects the hypothalamic pituitary-adrenal axis. Depressed patients have elevated corticotrophin-releasing factor (CRF) in their cerebrospinal fluid (CSF). Depressed patients have also been found to have negative dexamethasone suppression^{64, 65}. Postmortem studies have shown also that the brains of depressed patients contained more neurons producing CRF when compared to non-depressed controls^{66, 67}. These studies indicated that depression leads to heart disease by causing the hypothalamus to release CRF, which increases the level of corticosteroids and can lead to hypercholesterolemia, atherosclerosis, hypertension as well as hypertriglyceridemia.

Depression-induced autonomic tone change

This change reflects another probable link. Depressed patients may have decreased parasympathetic nervous system responses leading to an imbalance between the sympathetic and parasympathetic nervous system, which in turn may lead to arrhythmia⁶¹. Heart rate variability (HRV) is a good measure of the dynamic response of the autonomic nervous system reaction to physiological change. A high degree of HRV is seen in patients with good cardiac function whereas it is decreased in severe CAD and CHF⁶⁸. Low HRV has been observed in patients with depression^{69, 70}. HRV is even lower in depressed patients with CAD when compared to non-depressed patients with CAD⁷¹. In the ENRICH study, Carney et al. concluded that low HRV partially mediated the effect of depression on survival after an acute MI⁷². The role of vagal nerve stimulation on cardiac rhythm is not clear; one study has suggested little acute effect⁷³.

Depression affects the cardiovascular system through inflammatory process and abnormal platelet functioning

This is another possible mechanism in which enhanced platelet response to stress and depression might trigger platelet activation and increase platelet adhesiveness, thus possibly triggering an adverse coronary event⁷⁴. Berk and Plein studied the response of intracellular calcium to thrombin stimulation and found that patients with major depression showed heightened sensitivity to thrombin stimulation. This finding suggests that platelet intracellular calcium response to thrombin stimulation might have a role in the pathogenesis of depression and CVD.

C- reactive protein (CRP)

CRP is a nonspecific marker of systemic inflammation, which is consistently found to be elevated in depressed patients. High CRP has a significant predictive value for recurrent MI and cardiac death⁷⁵. The association of CRP and depression is not as strong as it is between CRP and exhaustion⁷⁶.

Endothelial dysfunction

Another possible mechanism is endothelial dysfunction, which has been found to be associated with depression. A marker of endothelial function was found to be significantly impaired in depressed patients compared to non-depressed patients⁷⁷. There is some evidence that the low red blood cell membrane of n-3polyunsaturated fatty acid is associated with depression, which in turn can increase the risk of sudden cardiac death⁷⁸. Other immunological markers like interleukin 6 and tumor necrosis factors are elevated in depression and CAD⁷⁶. Also, chronic infection and elevated level of antibodies to several pathogens are associated with depression; however, some studies confine this association to elderly depressed⁷⁹.

There is compelling evidence that depression affects cardiac morbidity and mortality and behavior toward health and treatment. Screening for depression in at risk for CVD patients, whether in primary care or other medical settings, can improve outcomes⁸⁰. Moreover, rapid assessment can also identify patients at risk of poor secondary prevention outcome⁵⁹ especially knowing that antidepressants are safe in depressed with CAD patients^{81, 82}. This emphasizes the need for attention by physicians to the relationship between depression and CVD.

A study in the United States recruited 50% of the nation's cardiovascular physicians to understand their method of diagnosing depression; ascertain their beliefs

about the association of depression and CVD; track the referral pattern for depressed patients; and, evaluate frequency of use and choice of antidepressants. Results showed that 71.2% of those interviewed asked less than half of their CAD patients about depressive symptoms and 79% did not use a standard screening tool to diagnose depression; 84.8% indicated that between 1% and 50% of their patients had depression; however, only 49.2% stated that they treated for depression. Of interest, the study showed that participants were aware of the indirect association between depression and CAD, but 49% were unaware of depression as an independent risk factor for CAD (83). From this research and other studies, it is apparent that depression, despite its high prevalence in the community and higher rate among CVD patients, is still under diagnosed and under-treated with only 50% of depressed patients receiving any treatment and only 25% receiving antidepressants⁸⁴.

Assessment for depression

There are many tools to assess depression. Most commonly used are the Patient Health Questionnaire-9 (PHQ9), PRIM MD, Hospital Anxiety and Depression scale (HADS), Cardiac Depression Scale (CDS), Beck Depression Inventory (BDI), and Hamilton Depression Scale (HAM-D). The PHQ9 is brief, valid and reliable and frequently used in primary care. It can be used effectively to diagnose depression in CVD patients⁸⁵.

Treatment of depression

Treatment of depression in CAD patients is critical for several reasons - most importantly, reducing emotional distress in the short-term may improve long-term mortality in patients with this condition⁸⁶. Treatment of depression is largely pharmacological. Recommended first line treatment for depression in patients with CAD are the SSRIs group of antidepressants, which are comparatively safe and have comparable efficacy⁸⁷. These include Fluoxetine, Sertraline, Paroxetine, Escitalopram and others. Observational and randomized controlled studies, including meta-analysis, found that patients on SSRIs had significant low CAD readmission (0.64, 0.45 to 0.86) and mortality rate (0.56, 0.35, to 0.88). The conclusion was that, for patients with CAD and depression, the use of SSRIs improved depressive symptoms and was likely to improve the CAD prognosis⁸⁸. SSRIs have high protein-binding affinity, which should be considered in patients on Digoxin and Warfarin, especially Paroxetine. Based on several studies, Sertraline and Citalopram plus clinical

management should be considered as first line treatment for patients with depression and CAD⁸⁹. Besides SSRIs, other antidepressants considered to be safe for treating depression in patients with CAD include Venlafaxine, which is a 5-HT and norepinephrine re-uptake inhibitor (SNRI). It may increase blood pressure (BP) in higher doses, but it is safe as long as the BP is observed; it also has minimal CYP450 interactions⁸⁹.

Mirtazapine is another dual action antidepressant, which has no significant cardiovascular effect except postural hypotension at high doses and can be used safely in patients with CAD⁹⁰.

Bupropion is classified as a monocyclic drug; it is a weak inhibitor of noradrenaline and dopamine re-uptake inhibitor, which is considered safe with CAD patients as long as BP and heart rate are monitored⁹¹. Although behavioral interventions are useful in the treatment of depression, the data are not very supportive of the use of behavioral therapies for treating depression in CAD patients.

Conclusion

In conclusion, depression is common in CAD patients. The data consistently indicate depression as a risk factor for both the development and worsening of CAD and, bi-directionally, CAD can cause depression as well. A number of pathophysiological mechanisms may explain this association. There is little doubt that treating depression can influence prognosis; however, it is strongly recommended that physicians screen patients with CAD for depression. It would be important to diagnose and treat patients' depression as well as their CAD since this approach is likely to improve patient prognosis. Treatment of depression in CAD depends mainly on SSRIs and other psychotherapeutic modalities.

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ملخص

الإكتئاب وأمراض شرايين القلب هما مشكل صحية شائعة بين الناس وكثيراً ما يتواجدان معاً في نفس المرضى. تتوقع منظمة الصحة العالمية أنه بحلول عام 2020 سيكون الإكتئاب و أمراض شرايين القلب أول سببين للإعاقة في المجتمع. العلاقة بين المرضين معروفة منذ وقت طويل ولكن نستطيع ارجاع الفهم الحديث لهذه العلاقة إلى منتصف القرن التاسع عشر. الأبحاث خلال القرن العشرين أثبتت أن العلاقة بين المرضين هي ثنائية الإتجاه أي أن الإكتئاب ممكن أن يؤدي إلى مرض شرايين القلب وهي بدورها قد تؤدي إلى الإكتئاب . العوامل النفسية التي تؤدي إلى الإصابة بأمراض شرايين القلب هي: الغضب، العدوانية، القلق والإكتئاب و العزلة الإجتماعية بالإضافة إلى شخصية . إن تفسير العلاقة بين الإكتئاب وأمراض شرايين القلب متعدد الجوانب وله علاقة بالنورادرينالين في محور تحت المهاد - الغدة النخامية - قشرة الغدة الكظرية، الجهاز العصبي المستقل، تنشيط الصفائح الدموية والالتهابات. يعتمد علاج الإكتئاب في مرضى شرايين القلب بشكل رئيسي على مضادات الإكتئاب التي تثبط إعادة إمتصاص السيروتونين في الدماغ. إن معالجة الإكتئاب عند مرضى شرايين القلب يحسن مآل مرضهم. لذلك من الأهمية بمكان أن يكون أخصائيي القلب قادرين على تشخيص الإكتئاب وعلاجه في مرضاهم .

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Predictors of child's health in war conditions: the Lebanese experience

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مُنبِئات عن صحة الطفل في ظروف الحرب: التجربة اللبنانية
ليلي فرهود

Abstract

Objectives: Children living under war conditions are affected directly and indirectly. This study investigates the physical and mental health of children in Lebanon in relation to war events and mediating factors. At the time of the initial data collection, little was known of the parental and environmental factors affecting child mental and physical well-being during war. In light of current research, a secondary analysis was conducted to further examine the influences on the health of children in war environments. **Method:** The secondary analysis was conducted on data from a stratified random sample of 2752 households in Beirut during the civil war (1975-1990). Based on reports from mothers, their health, child's health (ages 3-12) and stressors faced by the family were assessed. **Results:** High percentage of children experienced physical, psychological and interpersonal problems. Multiple regression analysis showed that parental and environmental factors predicted health of the child during war. **Conclusion:** In accordance with current research, life events, mother's mental health and family resources were strong predictors of child's mental health. Psychosocial preventive interventions focusing on family resources and the mental health of mothers and children are paramount to help safeguard the well-being of the children in times of war.

Key words: Child's health; war; maternal health; social support; psychosocial resources

Declaration of interest: None

Introduction

Modern day conflicts cause civilian casualties; with children being the most vulnerable, physically and psychologically.¹ Children are especially at risk during conflict; they suffer from fatal injuries, loss of limbs due to explosive remnants of war, hunger and disease, becoming targets of armed groups, and exploited as combatants¹.

War impacts children's cognitive, emotional and social development placing them at risk for mental health problems and impaired cognitive functioning^{3,4}. Children and their parents are exposed to war directly through experiencing or witnessing traumatic events (i.e. serious injury, permanent disability, destruction of one's home, death of a family member, indiscriminate violent acts)^{5,6,7}. Exposure to traumatic war events extend beyond the violence to the depletion or loss of material and social resources creating daily hassles (i.e. shortages in water, food, electricity, fuel) that can heavily burden the family unit and social support^{8,9}. Studies have shown that the effects of war trauma on children can be mediated by strong social support¹⁰ and the family's ability to function and cope with the stressors of war^{11, 12, 13}.

It is well known that children in conditions of war are resilient^{14,15}. Emotional, behavioral or physical responses towards the stressors of war vary from child to child^{16, 2}. Some children may develop posttraumatic stress disorder (PTSD)^{6,17,18,19}, withdraw from interpersonal contact,

become aggressive or regressive²⁰, have nightmares, separation anxiety, eating disturbances, learning difficulties, problems with concentration^{20,21} and somatic symptoms²².

Children are especially vulnerable to the maternal family's response to the direct and indirect stressors of war^{5,23,24} which can predict children's well-being in these times^{11,25,26,27}. Protection of child health in times of war and fostering resilience play a key role in preventing psychopathology²⁸. Therefore it is crucial to understand the factors influencing children's health during wartime in order to provide appropriate interventions for both the child and mother³. In light of current literature and the continued need to understand the impact of war on the well-being of children, this study examines the impact of war exposure and non-war life events, the mother's health, and the family's resources on children's health during the 15-year Lebanese civil war (1975-1990). Recommendations for interventions during and after war are discussed.

Background

Enduring war stressors (i.e. material and social resource loss) resulting from the conflict can increase the risk of poor psychological functioning^{29, 30}. For example, during the Lebanese civil war, Farhood et al.⁹ surveyed adult family members and found that the majority who reported daily hassles (i.e. electricity cuts (87%); water

shortages (75%), lack of food (55%) also reported poor mental health.

During the past 30 years, Lebanon has been subjected to devastating wars which have inflicted many atrocities on its population³¹. Several research studies have been conducted to explore the effects of war on children from different perspectives^{3,4,7,32,33,34}. At the time of the initial data collection used for the current study analysis, a 15-year long civil war inflicted violence and stressors on the Lebanese population⁹. During which time, little was known of the parental and environmental predictors of child mental and physical well-being. The following literature review brings together recent findings shedding light on the topic several decades later.

War events and health

In a study conducted in spring of 1985, Chimienti, Nasr and Khalifeh²⁰ examined the responses of the mothers of 1039 Lebanese children (ages 3-9) to assess the effects of war exposure on the emotional and social behavior. The authors found that children experiencing death of a family member, destruction of home or witnessing death were more likely to exhibit nervous, regressive, aggressive and depressive behavior than children who did not. Additionally, in a study performed on a selected sample of 2220 children 3-16 years of age living in Greater Beirut, Macksoud³³ found that 95% of the children were exposed to at least one traumatic war event, 82% were exposed to shelling, 63% exposed to combat, 60% were forced to change residence, and 53% had their home bombarded. Macksoud and Aber⁷ found that the number of war traumas experienced by children during the Lebanese civil war was positively associated with PTSD symptoms with displacement and separation from parents increasing depressive symptoms.

Children who experience war-related traumatic events may develop psychological symptoms such as aggressive behavior, emotional numbness, anxiety, and a sense of helplessness^{18,35,36}. Additionally children may also experience generalized fear, sleep disturbances, night terrors, nightmares, separation anxiety to caregivers, regressive symptoms such as bed-wetting and loss of acquired speech. They may also exhibit somatic symptoms such as stomach aches and headaches as well as safety concerns, preoccupation with danger, changes in behavior, mood, and personality⁷, loss of interest in activities, inability to concentrate, and lowering of school performance^{5,37}. Some children may also experience chronic symptoms placing them at risk for psychopathology such as PTSD^{18, 19}.

War exposure also affects cognitive functioning in children placing the child at risk for both short- and long-term consequences to cognitive development. As a result of war exposure, traumatized Bosnian children, aged 5-6 years, showed lower cognitive performance than children not exposed to violence³⁸. In another study on Palestinian children traumatized by war events, Qouta et al.³⁹ found that war trauma (i.e. loss, injury, and destruction to home) was highly associated with cognitive deficiency with regards to attention and concentration. Additionally, Punamäki et al.¹¹ found that cognitive impairment predicted symptoms of PTSD and depression in adolescents.

Maternal health

Several studies have investigated the link between maternal health and the well-being of the child in war conditions. Children whose mother had poor psychological functioning were more vulnerable for developing psychological disorders during armed conflict^{26,32} especially in younger age groups⁴ and females²⁵. Thabet et al.⁴ found that exposure to war trauma and parent's emotional response to their trauma experience were significantly associated with PTSD and anxiety symptoms in children. Additionally, the mother's parenting style and ability to cope during the conflict predicted child's health⁵.

Family resources

Family resources have been used as predictors of child health. Family resources (i.e. material and social) were significantly associated with psychological health, physical health, and interpersonal relationships^{9,40}. Concurrently, Farhood¹³ looked at the Lebanese family and found that the greater the family resources, the healthier the family, the better the coping. The author Barath⁴¹ looked at the health and psychosocial status of Albanian children exposed to ethnic conflict in Kosovo and found that poverty, lack of family resources and poor social support were major stressors and predictors of poor health. It is empirically supported that the most predictive factor of mental health outcomes during war is enduring social and material resource loss^{8,42,43} which places strain on both the family unit and community directly affecting adaptation, limiting resiliency, and greatly impacting psychological health^{5,12,25,44}.

Examining predictors of children's health during war continues to be a relevant research topic even decades following a war that devastated many lives and communities. Such assessments allow for a better understanding of the emotional and psychological toll the war environment has on child well-being and aids in

intervention planning.^{3,45,47} The scope of this analyses seeks to investigate the predictors of children's health in Lebanon during the war period of 1975-1990, and the role of mediating and moderating factors on health outcomes. Particular attention is made to mother's health and family resources as potential predictors of children's health and well-being during wartime.

Theoretical Framework

Figure 1 (below) presents the theoretical framework for the current analyses based on four main concepts: health of the child, stress factors generated from war and non-war life events, family resources and mother's health. Health of the child, the major concept of interest and the outcome variable in this study, is defined as the child's physical and mental health. Physical health reflects somatization symptoms in response to stress. Common psychosomatic complaints are presented in Table 1.

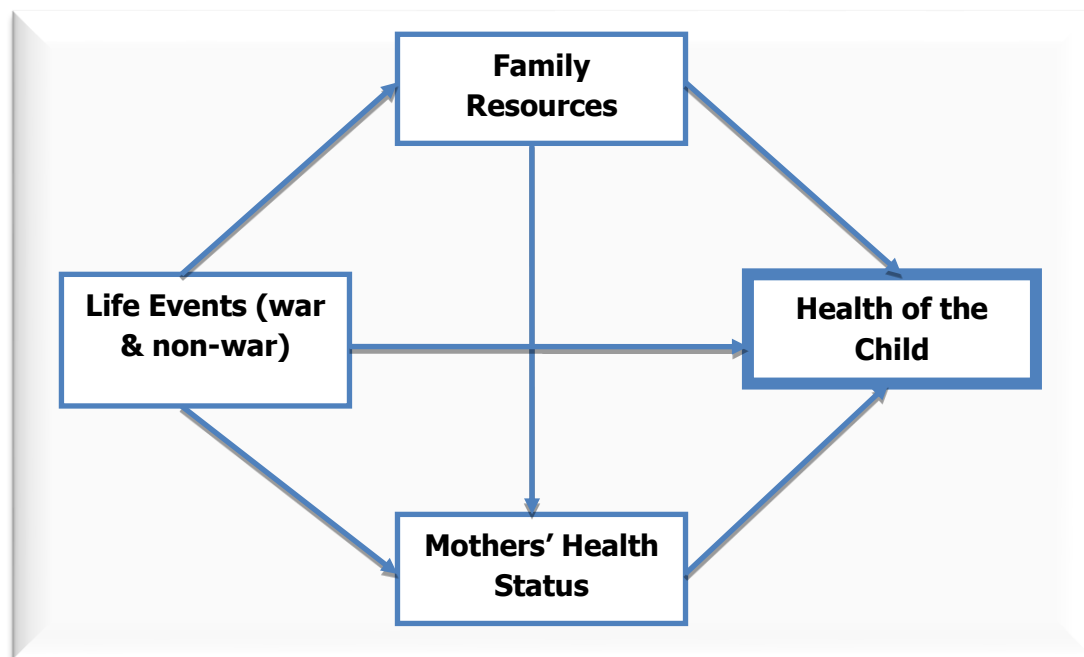
Mental health includes both psychological symptoms (Table 2) and problems in interpersonal relations (Table 3).

Another predictor of child health is maternal health, divided into physical health as reflected by somatic complaints, and mental health including both psychological and depressive symptoms together with interpersonal and marital relations (Table 4).

Stress is the major explanatory variable assessed by the severity and impact of stressful events faced by the child's family. This includes the normative life events and those associated with the war (Table 5).

In relating the explanatory variables to the major concept of the study, the child's health, it is important to consider the potential mediating factors, one of which is family resources. Other factors include the mother's education, age, socioeconomic status, and social support available to the family as reported by the mother.

Figure 1: Theoretical Framework



Stressful life events are predicted to negatively impact child health directly as well as indirectly through their influence on the mother's health and the family's resources. These factors are also interrelated, whereby family resources affect the mother's health status.

In this model, age appears as a control variable as child's health and development are reported to vary with age.

Methodology

Sample

A population and health survey of the city of Beirut was undertaken by the Population Laboratory of the Faculty of Health Sciences, AUB⁴⁶. Data was collected on a stratified random sample of 2752 households based on reports by mothers and carried out by trained university students. Families were interviewed at home and asked about their physical and mental health in relation to war and non-war events. The current study uses secondary data analysis from the 1984 health survey. All children aged between 3 and 12 years in the 540 families were

considered and this amounted to 478 children (male n=253; female n=225).

Measurements of concepts

Measures of health outcomes were derived from scales that had been used for the Lebanese population and based on the DSM-III-R criteria. These scales were further subjected to content validation⁹. The measures refer to:

A. Child's health:

1. Physical health was represented by 12 common somatic complaints such as hyperactivity, common cold, and tonsillitis (Table 1).
2. Psychological health was represented by nine complaints reflecting common psychological problems of children older than 3 years of age such as sleeping with parents, nervousness, and temper/tantrum (Table 2).
3. Interpersonal relations were assessed using seven common behavioral problems such as aggressiveness, shyness and crying (Table 3).

A symptom was reported by the mother if its onset had fallen within the six months prior to the interview. The mother was asked to rate the severity of each symptom or problem on a 4-point scale [0 for not occurring, 1 for mild, 2 for moderate and 3 for severe]. Summary scores were obtained for each measure of child's health by summing up the severity scales across the items making up the measure.

B. Stress:

The major explanatory concept was measured as follows:

1. War related event: assessed by asking about 17 war related events experienced by the children's family in the recent past. Events were divided into two groups: one group related to violent acts (seven events), another consisting of 10 events reflecting war related hassles of everyday life⁹.
2. Non-war related events: assessed by asking about events of daily family life in the recent past including marriage, pregnancy, illness, death, and job change⁹.

The occurrence and perceived impact of these events was reported by the mother. A summary score was obtained: 0=if the event never occurred or if it occurred with no impact; 1=if the impact was mild; 2=for medium impact; 3=for severe impact.

C. Mother's health:

1. Mother's physical health was represented by 14 somatic complaints such as headache, faintness, dizziness, muscle pain, nausea, vomiting, shortening of breath.
2. Mother's mental health was assessed by asking about 16 depressive symptoms such as poor appetite, weight loss, insomnia, inability to concentrate, feeling sad and lonely as well as seven psychological symptoms other than depression such as nervousness and forgetfulness, and interactional outcome represented by six problem areas in interpersonal relationships, and eight areas of concern in marital relations⁹. Each measure was given a summary score by adding up all the items comprising a measure.

D. Family resources

Farhood et al⁹ used the definition of family resources in terms of social support, education and economic status.

1. Socio economic status (SES) was measured as the educational level of the head of the household. This variable was grouped into three categories: 1=low for not completed primary, 2=medium for primary to not having completed secondary, and 3=high for completed secondary and above. SES was analyzed because it is an ongoing measure of financial status which has shown to affect coping⁹.
2. Educational level of the mother was grouped similarly to the head of household's educational level: 1=low for not completed primary, 2=medium for primary to not having completed secondary, and 3=high for completed secondary and above.
3. Age of the mother was grouped into four categories: 19 years of age or below, 20 to 39 years' of age, 40 to 59 years, and 60 years and above.
4. Social support available to the family was measured in terms of utilization and satisfaction with available resources in dealing with five problems of various natures (i.e. personal, financial, health, security and social issues) (data not shown)⁹.

E. Age of child:

Age was grouped into two categories: 3 to 5 years of age indicated preschool children, and 6 to 12 years indicate school age children.

Table 1: Mean Percentage of children (3-12 years of age) reporting physical symptom by age and gender.

Physical Symptoms	Ages 3-5 years		Ages 6-12 years		Total	
	Male N=70	Female N=52	Male N=183	Female N=173	Male N=253	Female N=225
Hyperactivity	49.5	25.0	45.4	34.7	44.7*	32.4
Common Cold	47.1	17.3	33.9	29.5	37.5*	26.7
Tonsillitis	20.0	25.0	24.6	20.2	23.3	21.3
Anorexia	24.3	25.0	12.0	20.2	15.4*	21.3
Diarrhea	15.7	13.5	7.7	6.4	9.9*	8.0*
Weight Loss	12.9	3.8	8.7	8.1	9.9	7.1
Skin Allergy	10.0	1.9	4.4	4.6	5.9	4.0
Constipation	4.3	1.9	6.6	4.6	5.9	4.0
Vomiting	5.7	13.5	4.9	5.8	5.1	7.6
Obesity	2.9	7.7	4.9	5.2	4.3	5.8
Palpitation	2.9	0	2.7	2.3	2.8	1.8
Hand Tremors	2.9	0	1.6	2.3	2.0	1.8

* P-value=0.05

Table 2: Mean Percentage of children (3-12 years of age) reporting psychological symptoms by age and gender.

Psychological Symptoms	Ages 3-5 years		Ages 6-12 years		Total	
	Male N=70	Female N=52	Male N=183	Female N=173	Male N=253	Female N=225
Sleeping with parents	45.7	46.2	26.2	24.3	31.6**	29.3**
Nervousness	30.0	23.1	31.7	27.7	31.2	26.7
Temper/Tantrum	28.6	19.2	19.7	13.3	22.1	14.7
Sleep talking/Screaming	10.0	7.7	12.0	9.8	11.5	9.3
Nail Biting	11.4	7.7	10.4	9.2	10.7	8.9
Enuresis	14.3	7.7	6.6	2.3	8.7*	3.6
Difficulty going to sleep	7.1	3.8	5.5	8.1	5.9	7.1
Stuttering	4.3	3.8	5.5	0.6	5.1	1.3
Nightmares	7.1	5.8	3.8	4.0	4.7	4.4
Total	70	52	183	173	253	225

* P-value=0.05 ** P-value=0.01

Data analysis

Data was analyzed using the SPSS program. Tabulations of the prevalence of physical and mental health symptoms were made by age and gender. Chi-square test was used to test for significance differences. Multiple regression analyses were also done between physical, psychological health and interpersonal relations and study variables (i.e. war related events, non-war related events, mother's health, family resources). Age and sex of the child was considered in the analysis.

Results

I. Health status of children

Approximately 70% of children surveyed were reported to have complained of one or more somatic symptoms within the six months prior to the interview. Table 1 displays the percent distribution of children by psychosomatic symptoms, age group and gender. Hyperactivity was the most frequently reported physical symptom, followed by common cold, both being

significantly higher among males. With respect to age differences, the results showed a significantly higher prevalence of common cold among the preschool age (3-5 years) only for males (47.1%), and anorexia in both males (24.3%) and females (25%), diarrhea for males (15.7%) and vomiting for females (13.5%).

As for psychological symptoms, wanting to sleep with parents, nervousness and temper/tantrums were the most prevalent reported symptoms for both males and females (Table 2). Most psychological symptoms showed higher levels among the age group 3-5 years than the 6-12 year age group, however, the difference was only significant for two symptoms: wanting to sleep with parents and enuresis. In general, males showed higher prevalence of reported psychological symptoms than females, but the difference was not statistically significant.

The percent distribution of children presenting with interpersonal problems is displayed in Table 3.

Aggressiveness was the most frequently reported problem for both males (35.6%) and females (29.3%), followed by shyness (20.2% for males and 16.4% for females) in both age groups.

Though boys exhibited more interpersonal problems than girls in general, the difference between them was not statistically significant. Additionally, there were no significant age differences on interpersonal problems for either males or females, or for the total sample.

II. Maternal Health

Mothers in this sample were predominantly young; more than two thirds were less than 40 years of age. As for their education, one third of mothers was illiterate or did not complete primary education. Another third had a moderate level of education (ranging from primary to not completed secondary), and the rest had an educational level of secondary or above. Additionally, 42.5% heads of households were of the middle socioeconomic status. Approximately one quarter was of low socioeconomic status and another quarter of high socioeconomic status. Mother's reported below average scores on physical, psychological symptoms, and problems in marital relations. However, mothers reported a high score on interpersonal relations (data not shown).

III. Stress

Results show that children and their families were exposed to a number of war events and acts of violence with moderate to severe impact. Armed clashes in their neighborhoods and having to leave their homes were the most common acts of violence that families and children encountered. These events were perceived by the mother

to have a severe impact. A very small proportion of these families experienced kidnapping and injury to family members, but those who did were severely impacted. As for the daily hassles arising from war related events, the majority of mothers reported high and severe impact. Moreover, there was a reduction in social networks, a dimension of the Lebanese war, was reported to be frequent and having severe impacts. Electricity cuts were reported by over 80% of the families along with water shortage by two thirds and 83% reported hardships due to change in economic status (data not shown).

IV. Family resources

The results show that around 40% of heads of households are of middle socioeconomic status; 25% are of low socioeconomic status and 25% are of high socioeconomic status.

When asked about degree of satisfaction with social support, mothers reported a high level of satisfaction with social support, especially by members of high socioeconomic groups (data not shown).

V. Determinants of child's health

Multiple regression analyses were performed to determine and predict factors related to the child's health in its three indicators: physical, interpersonal and psychological. Table 4 displays multiple regression of physical and mental health of children. The independent variables entered into the regression equations were war related events, non-war related events, mother's health, and family resources. Age and gender of the child were also considered. The significant predictors of child's physical health included maternal depression, maternal physical symptoms and social support.

Table 3: Percentage of children (3 -12 years of age) reporting interpersonal problems by age and gender.

Interpersonal Problems	Ages 3 -5 years		Ages 6 -12 years		Total	
	Male N=70	Female N=52	Male N=183	Female N=173	Male N=253	Female N=225
Aggressiveness	38.6	21.2	34.4	31.8	35.6	29.3
Shyness	15.7	9.6	21.9	21.4	20.2	16.4
Crying	7.1	5.8	12.6	7.5	11.1	7.1
Sad most of the time	2.9	3.8	8.2	13.3	6.7	11.1
Impolite	10.0	1.9	7.1	4.0	7.9	3.6
Inability to socialize	5.7	3.8	6.0	5.2	5.9	4.9
Stealing	8.6	5.8	4.9	2.2	5.9	3.6
Total	70	52	183	173	253	225

* P-value=0.05

** P-value=0.01

Table 4: Multiple regression analysis (regression coefficients and their S.E.) of physical, psychological health and interpersonal relations on study variable in relations to child health.

		Interpersonal	Physical	Psychological
War-related events	Violent acts	0.05** (0.017)	-	-
	Daily hassles	-	-	-
Non-war-related events		-	-	-
Mothers' Health				
Depression		0.070** (0.13)	0.05** (0.01)	0.35** (0.01)
Psychological		-	-	0.04** (0.02)
Physical		0.04** (0.017)	0.04** (0.01)	-
Interpersonal		-	-	-
Marital		-	-	-
Family Resources				
Social support		-	0.07* (0.03)	-
Socio-economic status		-	-	-
Education of mother		-	-	-
Age of mother		-	-	-
Child's variables				
Age		-	-3.59** (0.13)	-
Gender		-	-	-
R²		0.166	0.188	0.088
F-value		31.12**	15.78**	22.83**

* P-value=0.05

** P-value=0.01

Violent acts representing one dimension of the war related events were positively related to the interpersonal problems of the child ($r = 0.05$). Daily hassles were not significantly associated with any of the child's health measures. Non-war related events had no effect on child's health. In terms of the variables indicating maternal health, depression was significantly associated with a deterioration of the physical health ($r = 0.05$)

psychological health ($r = 0.35$), and interpersonal relations ($r = 0.07$) of the child. Poor psychological health of the mother was found to be positively associated with the child's psychological health ($r = 0.04$). Poor physical health of the mother was significantly associated with poor physical ($r = 0.04$), and interpersonal relations ($r = 0.04$) of the child (table 5).

Table 5: Multiple regression analysis (regression coefficients and their S.E.) for depression, psychological symptoms, physical symptoms, and interpersonal relations for mothers.

		Dependent Variables				
		Depression	Psychological	Physical	Interpersonal	Marital
War-related events	Violent acts	-	-	-	-	-
		(0.06)**	-	(0.05)**	(0.04)**	-
	Daily hassles	-	-	-	-	-
		(0.06)**	(0.03)**	(0.05)**	(0.04)**	-
Non-war-related		-	-	-	-	-
		(0.07)**	(0.03)**	(0.05)**	(0.07)*	(0.05)**
Social support		-	-	-	-	-
		(0.13)**	(0.7)**	-	-	(0.12)**
Socio-economic status		-	-	-	-	-
		(0.31)*	-	-	(0.33)**	(0.38)**
Age of mother		-	0.01*	-	0.00*	-
Education		-	-	-	-	-
		-	-	-	-	(0.36)**

* P-value=0.05

** P-value=0.01

In addition to the effects of stress and maternal health on the child's health, the family resources were also studied. Social support was the only significant mediating factor in relation to a child's physical health ($r = 0.07$). All other indicators of family resources were not significant.

Discussion

A secondary analysis was conducted on a sample from an extensive health survey administered to households in Beirut during the civil war⁴⁶. The current study aimed to assess health outcomes of children during wartime as impacted by mother's health and family resources. Factors of child's health were examined across three indicators: physical health, psychological health and interpersonal relations. In accordance with current research, family maternal health and social support moderated health outcomes in children during wartime^{5, 18, 26, 47}.

Current findings revealed that poor maternal psychological health was positively associated with poor child psychological health. Mothers' depression, specifically, was significantly associated with deterioration of children's physical and psychological health as well as interpersonal relations. The most reported psychological symptoms, irrespective of gender, included wanting to sleep with parents, nervousness and temper tantrums with higher scores observed in age groups 3-5 years. Exhibiting similar associated symptoms, following exposure to war events, a substantial proportion of Lebanese children suffered from anxiety, depression, and aggression³⁵.

Mother's mental health (i.e. depression) and physical health status was associated with child's health particularly in children 3-5 years. Similarly, Qouta et al.²⁵ found a strong association between mother's depression and child's psychological symptoms. With regards to reported physical health problems, there was a decrease with older age with the most common being colds which were predominantly in males. The most frequently reported psychological problem was hyperactivity and was significantly higher among males. Additionally, a higher prevalence of interpersonal problems in mothers was associated with shyness and aggression in their children. Qouta et al.²⁵ looked at child and mother mental health and found significant associations between symptoms of depression in mothers and their child's internalization of symptoms. Concurrently mother's hostile behavior predicted child's externalizing symptoms²⁵. Perhaps the child's behavior was influenced by the mother's response to interpersonal problems.

A vast amount of research has shown that exposure to war-related violence affects child's psychological and physical health^{5, 6, 46, 47}. In the present study, war-related acts of violence were associated with interpersonal problems in children, with strong associations across all three indicators for mothers. Additionally, daily hassles (i.e. electrical cuts, water shortages and financial hardships) and non-war related events were not associated with child health. However, mothers were impacted by these non-war related events across all indicators. Previous studies yielded similar findings suggesting that how mothers reacted to the daily war hassles influenced child's response^{5, 7, 20}.

War exposure that had the most severe impacts on the health of the entire family was armed clashes in the neighborhood and being forced from home due to a life threatening situation. Additionally, the current findings revealed that daily hassles associated with the war negatively impacted mother's health, but were not found to be a factor in child's health. Social support has shown to protect against the psychological effects of trauma^{3, 5, 12, 25} specifically in Lebanese populations^{7, 33, 20, 46, 47}. In the current study, social support was considered a family resource. Although mothers and families experienced a decrease in social networks during the Lebanese civil war, social support and interpersonal relationships were perceived as stable in the current study especially amongst those with higher socioeconomic status (SES). With regards to child's health, social support was only a protective factor in relation to physical health.

On a community level, psychosocial preventive interventions are the most effective interventions in conflict prone areas^{3, 7}. Interventions emphasizing a psychosocial model would be effective in targeting the psychological impacts of enduring daily stressors and resource loss (i.e. social and financial) that result from war⁴⁸. In terms of decreasing risk factors for child psychopathology in times of war, interventions should function on a community and individual level encouraging resilience and promoting parental coping mechanisms with an emphasis on ensuring and protecting healthy child development^{6, 49}. In a survey assessing special health and psychosocial needs of Albanian children in Kosovo shortly after the dramatic ethnic conflict in 1999, three major groups of stressors were identified as having an impact on child health and psychosocial well-being: lack of cultural and social security resources at home and in the community at large, poor physical and mental health conditions, and school-related stressors⁴¹. Along with meeting the basic material needs of a community during and after war,

ensuring sustainable mental health structures should be a key policy building initiative for long-term well-being of communities affected by conflict. Finally, in the absence of peace wars are inevitable. Therefore it is of great fundamental importance to secure the safety of children in war torn areas by implementing international initiatives that will aid in protecting them physically and psychologically during and after conflicts.

Limitations and future research

There were several limitations to this study. For example, this study used data based on the mother's accounts of child behavior which may have resulted in a reporting bias. For instance, mothers who reported on the health of their child may have been reflecting on their own health status. To test this bias, mothers having more than one child were selected to see whether those with low profile on health would report a low profile on all of their children's health. In similar studies where researchers used the same informant to report on two constructs, a significant relationship between stressful events and child health were found³⁴. However, when the children were asked to report, no significant relationship was found⁵⁰. Alternative methods could include utilizing several family members as reporters or ask the children directly as previous studies have done. Additionally, this study did not seek clinical diagnosis. Yehuda et al.⁵¹ reported that posttraumatic stress disorder in parents has been associated with anxiety symptoms in their children indicating a biological and a psychological component to the response to trauma⁵¹. Future research should compare the current findings with structured clinical interviews to assess correlates between maternal mental health and psychological disorders in their children.

Conclusion

The current study presents physical, psychological and interpersonal problems experienced by children under war conditions. In accordance with the literature conducted; since this study took place in 1987, the most important predictors of child health during wartime were found to be maternal health and family social support. These findings may serve as a framework for helping clinicians identify the predictors of child health to facilitate treatment guidelines for managing these problems in children undergoing such traumas and further preventing its negative impact. Further research should be undertaken to develop, implement and test culturally-sensitive mental health interventions that target both mothers and children post-war and experience ongoing stressors from living in a conflict ridden area^{3,52}.

In addition to community based psychosocial and psycho-educational interventions, much attention should be given to encourage and support the cognitive-emotional healing process in young children who are affected by the atrocities of war. As a follow-up to the above assessment and findings, an intervention study is being planned in South Lebanon with an aim to promote psychosocial and mental health care through community based educational workshops in schools. The intervention will include teachers, parents, children and adolescents.

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المخلص

الأهداف: عادة ما يتأثر الأطفال الذين يعيشون تحت وطأة الحروب بصورة مباشرة وغير مباشرة. تستعرض هذه الدراسة الصحة البدنية والنفسية للأطفال تحت تأثير الحروب والعوامل الوسيطة. لم تكن المعلومات عن تأثير الأسرة والعوامل البيئية على الصحة النفسية والجسدية للأطفال خلال الحروب كافية عند البدء بجمع البيانات للدراسة. وأجري تحليل ثانوي بناء على البحوث الحالية لتقصي التأثيرات على صحة الأطفال في أثناء الحروب. **المنهج:** أجري التحليل ثانوي على بيانات من عينة عشوائية طبقية مؤلفة من 2752 أسرة في بيروت في خلال الحرب الأهلية (1975-1990). وقدرت الإجهادات التي واجهتها هذه الأسر استناداً إلى تقارير من الأمهات عن صحتهم وصحة أطفالهن (بين 3 و 12 سنة). **النتائج:** أظهرت نتائج الدراسة أن نسبة عالية من الأطفال شهدت مشاكل جسدية ونفسية وفي علاقاتها مع الآخرين. وأظهر تحليل الانحدار المتعدد أن العوامل المرتبطة بالأهل والبيئة المحيطة تُنبئ عن صحة الطفل خلال الحرب. **خلاصة:** تظهر الأبحاث الحالية أن حوادث الحياة وصحة الأم النفسية وموارد الأسرة هي منبئات قوية عن صحة الطفل النفسية. ولذلك، تكتسي التدخلات النفسية الاجتماعية الوقائية التي تركز على موارد الأسرة وصحة الأمهات والأطفال النفسية أهمية قصوى للحفاظ على رفاه الأطفال في الحروب .

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Knowledge about childhood autism among care providers in Baghdad

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معارف مقدمي الرعاية العاملين في بغداد عن التوحد عند الأطفال

زينة محمد، لمياء ضياء الدين، حيدر عبد المحسن

Abstract

B **background:** Autism is a serious neurodevelopmental disorder. Poor knowledge about childhood autism among care providers could delay early recognition and interventions that could negatively affect prognosis. **Objectives:** To assess the knowledge level of autism disorder among care providers working in a sample of health facilities in Baghdad and to determine the factors that may have influenced such knowledge. **Methods:** A descriptive cross-sectional study with an analytic element was conducted in 18 primary health care centers and two specialized pediatric hospitals in Baghdad during the period from 6th February to 11th May 2011. Simple random sampling was used to select the health care centers. Data were collected by direct interview with the participant doctors working in the selected health facilities via a structured questionnaire for general socio-demographic information and autism domains to assess their knowledge level about childhood autism. **Results:** 200 doctors were interviewed regarding their knowledge about childhood autism; of those 110 (55%) were general practitioners, 46(23%) pediatric residents, 24(12%) pediatric specialists, and a further 20 (10%) were family and community medicine specialists. Most participants (95%) were aware of autism disorder. More than half (56.5%) of the respondents knew the correct age of establishment of autism, including signs and symptoms (1-4) years of age. There was a highly significant statistical difference between specialty of participants and the mean scores of different autistic domains with the highest mean score recorded among the pediatric specialists and the lowest mean score among the general practitioners working in the primary health care centers. **Conclusion:** The specialty as well as the working place of enrolled doctors highly influenced their knowledge level of autism.

Key words: Knowledge, autism, care providers

Declaration of interest: None

Introduction

Autism is a qualitative, complex and pervasive neurodevelopmental disorder of brain function. Signs of autism typically begin to appear between the ages of two to three years^{1,2} and are characterized by impairment in social interaction, communication and imagination with stereotyped, restricted range of activities and interests, which are referred to as the 'triad of impairment'.³ Autism now follows an epidemic pattern globally. It has no ethnic, racial or socioeconomic boundaries. The rate of affected boys to girls is (4.3:1).⁴ Globally there is a steady rise in the annual incidence of Autism Spectrum Disorders (ASD) with approximately 67 children diagnosed daily with autism. The prevalence rate of autism is estimated by the Center for Disease Control and Prevention (22/10,000)^{5,6}. In Iraq, the prevalence rate of autism among all childhood psychiatric disorders has reached 15.8%.⁷

There are no proven causes for autism; however, many authors have suggested causative theories. A list of possible risk factors include prenatal factors, genetic abnormalities, congenital rubella and measles^{8,9} and short spacing between each pregnancy¹⁰. Theories suggest perinatal herpes simplex virus, cytomegalovirus, anoxia

during delivery and the post-natal phase. Repeated infantile convulsions and chronic gastrointestinal tract inflammation that reduces the absorption of several minerals and vitamins, specifically vitamins A,B, and D, over growth of yeast, exposure to heavy metals found in the environment, such as lead poisoning, pesticide overuse, mercury toxicity present in thiomerosal preservatives in measles and Measles-Mumps-Rubella vaccines^{6,11}

Method

The present study was a descriptive cross-sectional study with an analytic element. It was carried out during the period from 6th February to 11th May 2011. A simple sampling technique using random numbers was achieved for health facilities selection that consisted of 18 Primary Health Care Centers (PHCCs); 10 were in Al-Karkh and eight in Al-Ressafa with two specialized pediatric hospitals as well as the Central Teaching Hospital of Pediatrics and the Children Welfare Teaching Hospital in Baghdad City. The data were collected by direct interview with respondents who were working in the selected health facilities via a structured questionnaire

which was constructed to collect information about two aspects:

The first aspect comprised six questions about the general socio-demographic profile of the participants.

The second aspect^{12, 13}: included 20 questions about the four domains of autism:

Domain A- included questions that addressed the impairment in social interaction in autism.

Domain B- included questions that addressed impairment in the area of communication and language development.

Domain C- included questions that addressed the stereotyped repetitive pattern of behavior.

Domain D- included questions about type of disorder and the age at which signs and symptoms of autism become established.

Statistical Analysis: The collected data were analyzed using SPSS (Version 18). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range.

- Scoring method was used to analyze the answers of the respondents to assess the level of knowledge. The significance of difference between mean scores of the four domains with the specialty of participant doctors was tested using an Analysis of Variance (ANOVA) and Chi-Square Tests as appropriate. Statistical significance was considered whenever the P- value was <0.05.

Results

During the study period, 200 doctors were interviewed; of those 110 (55%) were general practitioners, 46 (23%) were pediatric residents, 24 (12%) were pediatric specialists and 20 (10%) were Family and Community specialists as shown in Figure 1.

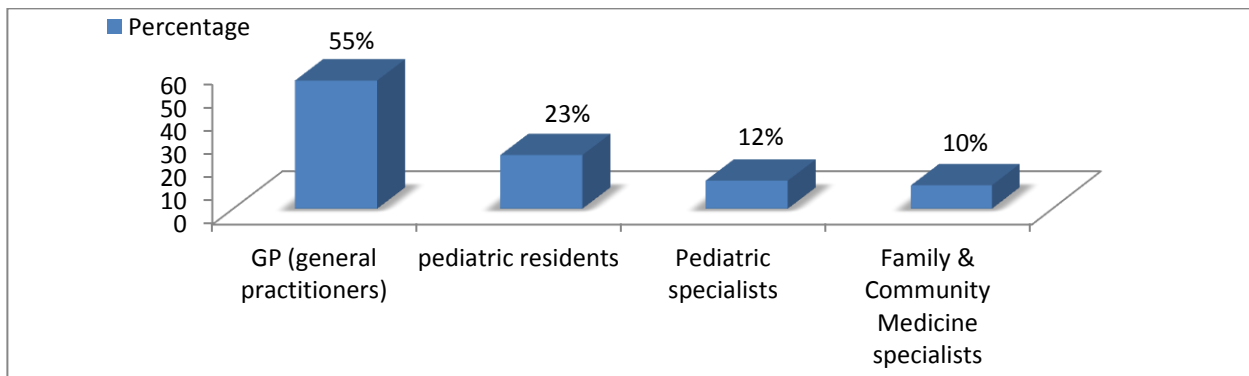


Figure 1. Distribution of the studied sample according to the specialty of the participants

Out of 200 participant doctors, 125 (62.5%) were women and 75 (37.5%) were men; 90 (45%) had 10-19 years of medical practice. More than two thirds, 130, (65%) participating doctors were working in PHCCs while 70

(35%) were working in pediatric hospitals; 64 (32%) of the participants were in the age group 35- 39 years.

Figure 2 shows that more than half of the participants 113 (56.5 %) knew the correct age period of signs establishment of autism at (1-4) years.

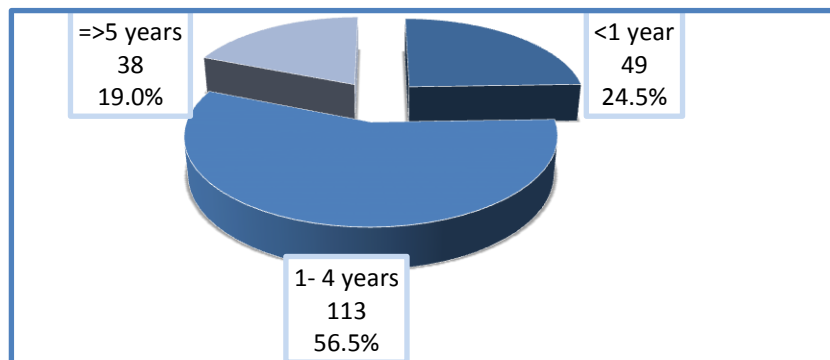


Figure 2. Distribution of the studied sample concerning their knowledge about the age at which the autistic signs become established

Figure 3 shows that the highest mean score reported among the participants (14.24 ± 2.65) was found in domain A, which address the impairment in social

Interaction while the lowest mean score (4.67 ± 1.13) was found in domain B that addressed the impairment in the area of communication and language.

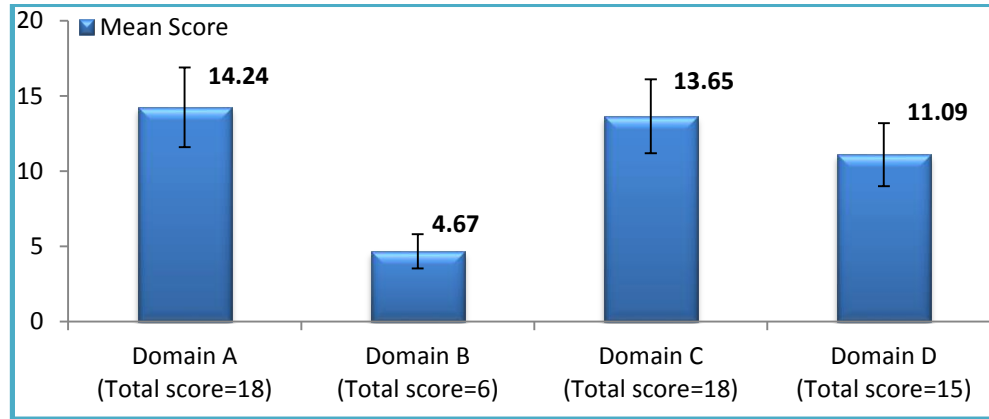


Figure 3 Distribution of the studied sample according to the mean score of different domains

Table 1 shows high significant differences between the mean scores of different domains and the specialty of

respondents (P value = 0.0001)

Table 1 Distribution of the sample according to the doctor's specialty and the mean scores of each domain

	Specialty				P value
	GP(general practitioners)	Pediatric residents	Pediatric specialists	Family and Community Medicine Specialists	
Domain A (Total score=18)	13.33 \pm 2.94 (6-18)	15.09 \pm 1.55 (11-18)	16.38 \pm 1.38 (13-18)	14.70 \pm 1.81 (11-17)	0.0001* F= 13.446 df= 196 ;3
Domain B (Total score=6)	4.37 \pm 1.20 (2-6)	5.02 \pm 0.80 (3-6)	5.25 \pm 0.94 (4-6)	4.85 \pm 1.09 (2-6)	0.0001* F=6.922 df= 196;3
Domain C (Total score=18)	12.91 \pm 2.73 (6-17)	14.11 \pm 1.34 (11-16)	15.62 \pm 1.61 (12-18)	14.30 \pm 1.92 (11-17)	0.0001* F=11.010 df=196 ;3
Domain D (Total score=15)	10.53 \pm 1.96 (6-15)	11.59 \pm 2.09 (7-15)	12.71 \pm 1.57 (10-15)	11.10 \pm 2.25 (8-15)	0.0001* F=9.261 df = 196 ;3

f –test analysis of variance df: degree of freedom

Discussion

General family practitioners and pediatricians are commonly the first health care providers that the child and family have contact with through routine infant/toddler wellness checks. As such they are typically one of the first medical professionals to whom parents will voice concerns regarding their child's development, so early detection of autism may occur in the context of primary care visits^{14,15}.

The present study reveals that most respondents (95%) had heard about autism, but demonstrated varying levels of knowledge. This was much higher than what had been

reported Rahbar et al. in Pakistan¹⁶ who suggested only 44.6% of the studied sample were aware of autism; however, in that study the sample included only GPs, while in the current study the sample includes GPs, Family and Community Medicine specialists and Pediatricians who have variable levels of knowledge¹⁷. More than half of the respondents agree that the signs and symptoms of autism are present from between 1-4 years of age. This finding is well explained by Rhoades et al.¹⁸ who stated that most parents of autistic children begin seeking treatment services and bringing their children to doctors around this age period.

The present study indicates that 40.5% of respondents don't know that autism may be associated with epilepsy. The explanation was raised in similar studies, which may be due to weak background about autism¹⁹. A study conducted in Baghdad by Al-Shimmery et al.⁷ suggested that 9.1% of the autistic child studied developed seizures. Epilepsy is an uncommon feature for many autistic children, but its presence at different age ranges makes the inclusion of seizure in the associated co-morbidities of autism a questionable point, which was not clear to about half of the participant doctors¹⁷. Significant association was found between the knowledge about all domains and the working place of participant doctors. These findings supported a study in Nigeria by Igwe et al.^{20,21} who found that the work place greatly influenced the knowledge of health workers. Further, Mandell et al.²² reported that doctors working in pediatric hospitals in Pennsylvania were dealing with and managing more concentrated populations of children who met the autism criteria. These children were brought by their parents to confirm diagnosis and receive treatment compared with a lower number of children suspected of having autism who visited the PHCCs for vaccination or received treatment for less serious diseases. Chakrabarti et al. concluded in a survey in India²³ that 68% of autistic children firstly receive their diagnosis within the context of pediatric hospitals visits.

Conclusions

The present study revealed that the vast majority of the participating doctors (95%) were aware of autism disorder, but demonstrated variable levels of knowledge. The lowest mean score for all domains was found among the general practitioner doctors. More than half (56.5%) of the respondents knew that the correct age of establishment of autism signs and symptoms is between 1 and 4 years of age. High significant statistical association was found in the present study between the knowledge level about all domains and the specialty as well as the working place of enrolled doctors, which was unrelated to age or gender.

Recommendations

It is important to fill knowledge gaps among doctors by arranging appropriate training courses, particularly for general practitioners working in primary health care centers for autism identification and management. It is also worth including training on Autism Spectrum Disorders in the medical curriculum. Raising awareness at the community level should be initiated while also

encouraging further research about this very serious problem.

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المخلص

التوحد هو اضطراب هام، عصبي نمائي في وظيفة الدماغ. ضعف المعرفة بين الأطباء عن التوحد عند الأطفال يتعارض مع التمييز المبكر والتدخل اللازم والذي من شأنه تحسين و تطوير التشخيص لإضطراب التوحد. لتقدير مستوى المعرفة عن اضطراب التوحد بين مقدمي الرعاية الصحية العاملين في عينة من المؤسسات الصحية في مدينة بغداد، ولتحديد العوامل المؤثرة على هذه المعرفة تم تنفيذ دراسة مقطعية تحليلية في (18) من مراكز الرعاية الصحية الأولية، وإثنان من مستشفيات الأطفال التخصصية في مدينة بغداد خلال الفترة من السادس من شهر شباط ولغاية الحادي عشر من شهر أيار لسنة 2011. تم إختيار هذه المؤسسات الصحية وفق تقنية بسيطة عشوائية لأخذ العينات من خلال جدول الأرقام العشوائية و تم جمع البيانات اللازمة بالمقابلة المباشرة مع الأطباء المشتركين والعاملين في المؤسسات الصحية المختارة، باستخدام إستفتاء مركب لجمع المعلومات والتي تخص وجهين، الأول يخص المعلومات الديموغرافية الإجتماعية العامة للأطباء المشتركين، أما الوجه الثاني فيشمل أربعة محاور على شكل (20) سؤال لتكوين فكرة عن مدى معرفة الأطباء المدرجين عن التوحد عند الأطفال. خلال فترة الدراسة (200) طبيب تمت مقابلتهم وسؤالهم وقد اشتملت على 110 (55%) هم ممارسين عامين و 46 (23%) منهم كانوا مقيمين أطفال وكذلك 24 (12%) هم إخصائي طب الأطفال و 20 (10%) منهم كان من أخصائي طب الأسرة والمجتمع. ولقد أظهرت الدراسة أن معظم الأطباء المشتركين (95%) قد سمعوا بأضطراب التوحد، ولكن بمستويات مختلفة من المعرفة، مع أعلى معدل للنقاط للمحاور الأربعة سجل بين أخصائي طب الأطفال، بينما أقل معدل للنقاط لجميع المحاور وجد بين الأطباء الممارسين العاميين. حوالي (56,5 %) من المستجيبين وافقوا على أن أعراض و علامات التوحد تثبت في سن يتراوح بين (1-4) سنوات من عمر الطفل. وجدت هذه الدراسة علاقة مباشرة بين مستوى المعرفة بالمحاور الأربعة وبين كل من الإختصاص و محل عمل الأطباء المشتركين. عدة توصيات اقترحت لغرض تحسين مستوى المعرفة بين مقدمي الرعاية في المؤسسات الصحية عن التوحد عند الاطفال في العراق.

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Hearing ability among patients with pervasive developmental disorders

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قابلية السمع عند المرضى المصابين بالتوحد

الهام خطاب الجماس ، علي عبد المطلب محمد، همام غانم الحاج زبير ، بسام حسيب عبد الفتاح

Abstract

B **background:** Assessment of auditory abilities is important in the diagnosis and treatment of children with autism. Although the diagnosis of autism is strengthened when hearing is normal, hearing impairment should not eliminate autism. **Objective:** The aim of the present study is to evaluate hearing ability among patients presenting with pervasive developmental disorders. **Methods:** This case series study included 51 patients presenting with pervasive developmental disorders who consulted Psychiatric Research Unit/College of Medicine and underwent hearing assessment at Al-Jamhory Teaching Hospital from January to November 2011. **Results:** The study included 51 patients: 34 males (66.6%) and 17 females (33.4%) with ratio of 2:1. The mean age of patients was 6.62 years with a peak age of presentation at eight years of age. A pervasive developmental disorders screening scale revealed that 20 patients (39.3%) were not autistic. Twenty seven patients (52.9%) were suffering from mild symptoms whereas moderate and severe symptoms encountered in 3 (5.9%) and 1 patient (1.9%) respectively. Hearing assessment revealed that 33 patients (64.7%) were normal. Six patients (11.8%) were suffering from mild hearing loss whereas moderate and severe hearing loss were encountered in 5 (9.8%) and 7 patients (13.7%) respectively. Very weak correlation ($r_s = 0.071$, $p = 0.62$) has been found between symptoms of pervasive developmental disorders and severity of hearing loss. **Conclusion:** More than a third of patients with pervasive developmental disorders have hearing affection. However, no significant correlation has been found between severity of pervasive developmental disorders and hearing impairment.

Key words: Autism, pervasive developmental disorders, hearing loss, deafness

Declaration of interest: None

Introduction

In 1943, Leo Kanner first described a behavioral disorder in children that he referred to as "autism". Patients with this disorder have difficulties with social interactions and social reciprocity. Individuals with autism have language and communication deficits. Prior to 1996, the prevalence of autism was estimated as 5.2 per 10,000. During that time period, when psychometric tests for autism were modified, the estimated prevalence increased to 60 per 10,000¹.

Assessment of auditory abilities is important in the diagnosis and treatment of children with autism. The hearing level of a child with autism should be considered in his/her rehabilitation and educational program although the diagnosis of autism is strengthened when hearing is normal, hearing impairment should not eliminate autism².

Deafness and autism are considered as possible diagnoses when a child displays early communication difficulties. Co-morbidity rates may be higher than expected and when the conditions co-occur there appear to be difficulties in diagnosis that may lead to either

condition being missed or diagnosed late. This has implications for providing effective and optimal remediation³.

The largest study of deafness and autism was done by Isabel Rapin and colleagues of the St. Joseph's School for the Deaf in New York City. Of the 1,150 students who had attended St. Joseph's, 4% were found to be both deaf and autistic⁴. Moreover, Rosenhall et al⁵ studied the presence of hearing impairment in those with a diagnosis of autism and found that 9.5% had a hearing impairment (sensorineural and/or conductive hearing loss). The prevalence of profound hearing impairment in their study was about 3.5%.

Jure et al.⁶ did not find any association between the severity of hearing impairment and autistic traits, but there was a relationship between the degree of intellectual disability and the autism (i.e. the higher the degree of intellectual disability, the more severe the autism). This observation is consistent with the large body of evidence showing an increased prevalence of autism and autistic traits in people with more severe intellectual disability⁷.

The goal of the present study is to evaluate hearing ability among patients presented with pervasive developmental disorders.

Patients and Methods

This case series study included 51 patients presenting with pervasive developmental disorders who underwent psychiatric and hearing assessment. The study was carried out at the Psychiatric Research Unit, College of Medicine and Audiology Unit, Al-Jamhory Teaching Hospital for the period from January to November 2011. Hearing assessment was done depending on history, examination and free field audiometry using paediatric audiometer PA5, interacoustics (Made in Denmark). Auditory brain stem response (ABR), Madsen, Octavus (Made in Denmark) was ordered accordingly when there was suspected hearing loss.

Pervasive developmental disorders screening scores classified as not autistic when the scores are less than 50, mild 50-100. Whereas, moderate and severe were 100-150 and >150 respectively⁸. Moreover, hearing loss was classified into four grades, according to the degree of hearing impairment of auditory brain stem response (ABR):

- Normal hearing 0-25 dB.
- Mild hearing loss 26- 40 dB.
- Moderate hearing loss 41-70 dB.
- Severe and more when the threshold of hearing was more than 71 dB.

The data were tabulated and analyzed using Minitab version 13.20 software program. When analyzing the data, simple proportions, percentages and means were used. Spearman Rank Correlation (rs) coefficient was calculated between severity of hearing impairment and psychiatric scale of pervasive developmental disorders. T-test for two means (independent) was used in comparing between male and female mean age. P-value ≤ 0.05 were considered significant throughout data analysis.

Results

The mean age of patients studied was 6.62 years with a range of 2-20 years. The peak age of presentation was in the 8th year of life (Figure1). The study included 34 male patients (66.6%) and 17 females (33.4%) with a ratio of 2:1.

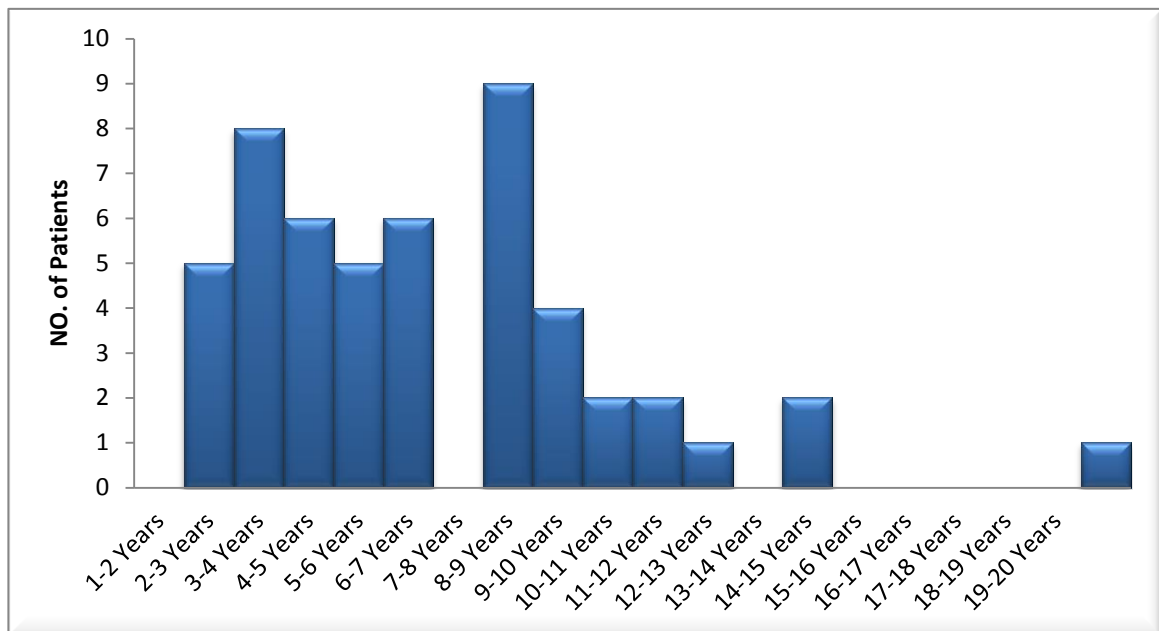


Figure 1. Age distribution of patients

Pervasive developmental disorders screening score revealed that 20 patients (39.3%) were not autistic. Twenty seven patients (52.9%) were suffering from mild symptoms whereas moderate and severe symptoms were encountered in 3 (5.9%) and 1 patient (1.9%) respectively. Hearing assessment revealed that 33

patients (64.7%) were normal and 18 patients (35.3%) were suffering from various degrees of hearing impairment. Six patients (11.8%) were suffering from mild hearing loss whereas moderate and severe hearing loss encountered in 5 (9.8%) and 7 patients (13.7%) respectively (Figure 2).

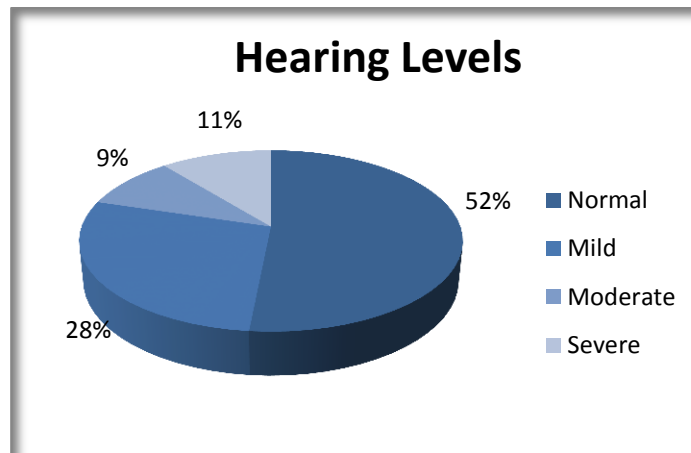


Figure 2. Hearing levels of patients

Table 1 shows that there is no association between disorders and severity of hearing loss. severity of symptoms of pervasive developmental

Table 1. Association between severity of symptoms of pervasive developmental disorders and severity of hearing loss

Pervasive Developmental Disorders Score					
Hearing Assessment	Not autistic	Mild	Moderate	Severe	Total
Normal	12	19	2	---	33(64.7%)
Mild	2	4	---	---	6(11.8%)
Moderate	3	2			5 (9.8%)
Severe	3	2	1	1	7 (13.7%)
Total	20(39.3%)	27(52.9%)	3(5.9%)	1(1.9%)	51(100%)

P= 0.675 by using overall Chi-square test of independence

Moreover, statistical analysis revealed that there is again no correlation ($r_s=0.071$, $p=0.62$) between severity of symptoms of pervasive developmental disorders and severity of hearing loss.

Discussion

Impaired language development may be a manifestation of mental retardation, autism hearing loss, cleft palate or cerebral palsy¹. Autism spectrum disorders are particularly difficult to diagnose in the presence of early profound deafness because of communication related issues³.

A consistent feature in epidemiological studies is the fact that male individuals are more frequently affected than females. The ratio of male to female subjects is 4 to 1. This ratio is lower, 2 to 1, among those who have autism together with a learning disability¹. The average age of

our patients was 6.62 years with a male: female ratio of 2:1. In comparison, Tharpe et al.⁹ reported that the average age of the experimental subjects was 5.7 years (19 boys and 3 girls). However, Vernon et al.⁴ reported that according to St. Joseph's School for the Deaf study the median age at which the deafness was diagnosed was two years whereas, the median age at which the autism was detected was four years. Moreover, Tas et al.² when evaluating hearing in children with autism found that participants with autism comprised 21 (70%) males and nine (30%) females; the mean age was 3.8 ± 1.3 (range 2–7) years.

Hearing loss may be more common in children with autism than in typical children. It is important to detect any hearing loss at an early stage for the prevention of a

possible failure to respond to the educational needs of people with autism².

Statistical analysis of our results revealed that more than a third (35.3%) of patients had hearing affection. Six patients (11.8%) were suffering from mild hearing loss whereas moderate and severe hearing loss were encountered in 5 (9.8%) and 7 patients (13.7%) respectively. However, no significant correlation was found between severity of pervasive developmental disorders and hearing impairment.

By comparison, Rosenhall et al.⁵ reported that the occurrence of hearing loss was evenly-distributed among the spectrum of low- to high-intellectually functioning individuals suggesting that the presence of hearing loss is unrelated to the severity of the autistic disorder. However, Szymanski et al.¹⁰ indicated that 1 in 59 children (specifically 8-year olds) with hearing loss were also receiving services for autism, which was considerably higher than reported national estimates of 1 in 91 for hearing children. Significantly more children with profound hearing loss had a co-morbid diagnosis of autism than those with milder forms of hearing loss.

Conversely, Tharpe et al.⁹ reported that approximately half of the children with autism presented with elevated pure-tone thresholds greater than 20 dB HL despite having normal to near-normal hearing sensitivity as determined by other audiometric measures. The prevalence of autism and deafness among the general population of children who are deaf is reported as being about 1 in 80. However, for years the double disability of deafness and autism was rarely diagnosed, seldom studied, and little understood. Steinberg also observed that deaf children usually get a diagnosis of autism later than children who are not deaf. This is particularly unfortunate because the period between the ages of 1 and 4 years is a period when brain plasticity is at its maximum and it is easiest to establish or alter neural pathways. The diagnosis of autism in a child who is deaf is further complicated by the fact that the test most commonly used, the Autistic Diagnostic Observation Schedule, has items in it that are inappropriate for children who are deaf⁴.

Hearing impairment and autism are both disorders of communication and can therefore be mistaken for each other during early childhood. Children eventually diagnosed with autism are often initially thought to be deaf by the parents. However, both conditions may be present in a child simultaneously¹¹.

An important finding of the St. Joseph's study was that the more intelligent autistic children who were deaf did well after transferring to the school and using sign

language even though some had proven unmanageable in other settings. In part, this reflects how difficult it can be to diagnose autism in a child who is deaf. In fact, some children with autism who are deaf are unable to be tested psychometrically⁴.

Behavior intervention strategies that positively affect students with a dual disability of deafness and pervasive developmental disorder need to be investigated and identified so that teachers of the deaf can provide appropriate, research-based interventions. Until such information is available, the application of applied behavior analysis procedures might be considered a "best practice" for teachers of students who are deaf or hard of hearing and who have the additional disability of pervasive developmental disorder. Applied behavior analysis is a tool that teachers of the deaf need in order to provide appropriate intervention to students with the dual disabilities of deafness and ASD/PDD¹².

Vernon and Rhodes⁴ cited a number of conditions that can cause both hearing loss and autism. These include rubella, cytomegalovirus, herpes, chicken pox, toxoplasmosis, syphilis, mumps, prematurity, and hemophilic influenza. Most, if not all, of these conditions, when severe enough to cause significant hearing loss, also have a strong probability of causing other disabilities, including various forms of brain damage. Among children with both autism and deafness, neurological and congenital anomalies are more common than in groups with only one diagnosis.

Roper, Arnold and Moteiro³ reported that no differences in autistic symptomatology were found between the deaf autistic and the hearing autistic group. However, the deaf autistic group was diagnosed later than the hearing autistic group. It is concluded that autism can be diagnosed in the deaf; that it resembles autism in the hearing; and that it is not a consequence of deafness per se. Learning disabled deaf individuals who are not autistic do not resemble people with autism in behavioral terms. The findings have implications for remediation, education, and the emergence and management of challenging behaviors.

Conclusion

More than a third of patients with pervasive developmental disorders have hearing affection. However, no significant correlation has been found between severity of pervasive developmental disorders and hearing impairment.

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ملخص

هدف الدراسة: تهدف الدراسة الحالية إلى تقييم حدة السمع عند المرضى المصابين بطيف التوحد. **طريقة الدراسة:** دراسة لـ 51 مريضاً مصابين بطيف التوحد أجري لهم تقييم لحدة السمع. أجريت الدراسة في وحدة البحوث النفسية، كلية طب الموصل وشعبة السمع والتخاطب، المستشفى الجمهوري التعليمي، موصل-العراق للفترة من كانون الثاني 2011 إلى تشرين الثاني 2011. **النتائج:** اشتملت الدراسة على 51 مريضاً، منهم 34 ذكور (6.66%) و 17 أنثى (33.4%) بمعدل 2:1، وكان متوسط عمر المرضى 6.62 سنة. أثبت اختبار طيف التوحد أن 20 من أصل 51 مريضاً (39.3%) لم تظهر عليهم إصابة بطيف التوحد و 27 (52.9%) مريضاً مصابين بتوحد خفيف الشدة، في حين أن التوحد متوسط الشدة والشديد كانت 3 (5.9%) و 1 (1.9%) على التوالي. هذا من ناحية ومن ناحية أخرى وجد بأن 33 (64.7%) مريضاً كانوا بحالة سمع طبيعية، 6 (11.8%) مرضى يعانون من صمم خفيف الشدة في حين أن الصمم المتوسط الشدة والشديد كانت 5 (9.8%) و 7 (13.7%) مرضى على التوالي. كما لوحظ وجود ارتباط ضعيف جداً وغير هام بين حدة طيف التوحد وحالة السمع لدى الأطفال ($r=0.071$, $p=0.62$). **الخلاصة:** إن أكثر من ثلث مرضى طيف التوحد في العينة يعانون من ضعف السمع، وعلى الرغم من ذلك لا يوجد أي ارتباط هام بين حدة التوحد ودرجة الصمم لدى أطفال العينة.

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School bullying in the Arab world: A Review

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مراجعة العنف المدرسي في العالم العربي
شاهي كزاريان ، جمانة عمار

Abstract

Objective: School bullying is recognized as a global problem with serious academic, physical, social, and psychiatric consequences. The objective of the present review is to inform lay and formal psychological theories proposed for the understanding of the cultural, social, personality and school-related contextual factors implicated in school bullying in the Arab world and in order to invoke the need for the advancement of national policies, research agendas, and school focused anti-bullying programs. **Method:** A literature search was conducted for the purposes of reviewing the literature available on school bullying. **Results:** While peer victimization has been a preoccupation of Europeans and North Americans for many decades, interest in school bullying in the Arab world is a recent phenomenon. The limited prevalence studies on school bullying in the Arab world suggest varying rates with 20.9% of middle-school adolescents reporting bullying in the United Arab Emirates, 31.9% in Morocco, 33.6% in Lebanon, 39.1% in Oman, and 44.2% in Jordan; boys typically endorsing more engagement in peer victimization than girls. **Conclusion:** There is a need for more research in the Arab world concerning forms, signs, locations and consequences of school bullying in addition to national policies and school-based, anti-bullying program initiatives.

Key words: School bullying, bullying forms, bullying consequences, bullying theories, prevention.

Conflict of interest: None declared

School bullying in the Arab world: a review

School bullying is a global problem confronting the international community. It can involve solo or group-based abuse or aggression directed toward a single individual or a group of individuals with or without the presence of witnesses or bystanders^{1,2}. The four main aspects of school bullying are the bully (perpetrator of bullying behavior); the victim (recipient of bullying behavior); the bully/victim (victim and perpetrator); and the bystander (witness of bullying behavior). School bullying may involve peer victimization in which an individual student or a group of students bullies an individual peer or a peer group; teacher-on-student bullying in which a teacher bullies a student; and student-on-teacher bullying in which a student bullies a teacher^{1,2}.

While decades of empirical research on the understanding, assessment and prevention of school bullying exists in Western countries, interest in school bullying in the Arab world is a recent phenomenon. A possible suggested factor in the relative delay of interest in school bullying relates to the absence of a specific Arabic term for bullying or difficulty in establishing a satisfactory Arabic equivalent to the English term "bully" because of dissatisfaction with such prevailing electronic Arabic-English dictionary translations as *baltagi*-hired thugs and *al irhabi*-terrorist. The recent emergence of

more acceptable alternative Arabic equivalents to the term bullying, such as aggressive behavior or school violence³ has been instrumental in spurring interest in school bullying.

In the present literature review (based primarily on Medline and PsychInfo sources), prevailing theories of school bullying and its various forms, signs and consequence as they relate to the Arab world are discussed as are gaps in national policies, research agendas, and school focused anti-bullying program development, implementation and evaluation initiatives.

Definition of school bullying

As a specific form of abuse or aggressive behavior, school bullying is typically defined as an intentional and repeated harmful act directed at a less powerful other in the school setting⁴⁻⁹. While different defining elements such as absence of provocation have been considered, three key elements distinguish school bullying from school violence and simple peer-related interpersonal conflict: intention to cause harm, repetition of the harmful act(s), and an imbalance of power between the bully (perpetrator of bullying) and the bullied (recipient of bullying). The power differential imperative in the definition of school bullying implies that the perpetrator of bullying has an element of an advantage over the victim of bullying such as physical size and strength,

social status, authority, and popularity. Similarly, the imperative of repetition of the negative action(s) over time implies that the harmful behaviors tend to exceed a single episode, the recurrence of bullying serving the function of buttressing the power differential of the bully over the bullied.

While the Western-grounded definition of school bullying is considered universal or etic the power differential imperative may be culture-bound or emic. In contrast to Western cultures in which peer-on-peer bullying involves older students bullying younger and weaker students, for example, bullying in Japan typically occurs by peers of comparable age¹⁰.

Prevalence of school bullying

Prevalence studies on school bullying in different Western countries are more focused on peer victimization than teacher-on student or student-on-teacher bullying, one study estimated 45% of teachers reported having bullied a student at one time or another¹¹. Peer victimization rates for 11-15 year olds in schools vary across countries¹² with estimates ranging from 8.6% to 45.2%, rates of bullying being higher for boys than girls, rates of victimization being generally higher for girls than boys, rates of peer victimization decreasing with age, and adolescents in Baltic countries reporting higher rates than those from Northern European countries^{12,13}.

Prevalence studies on school bullying in the Arab world are rare. Fleming and Jacobsen¹⁴ examined the prevalence of peer victimization in middle-school students in 19 low- and middle-income countries (per capita Gross National Income less than US 11,455 in 2007) and reported an average prevalence rate of 34.2% for the 19 countries, and prevalence rates of 44.2% for Jordan, 33.6% for Lebanon, 31.9% for Morocco, 39.1% for Oman, and 20.9% for the United Arab Emirates. The variance in school bullying prevalence rates reported for the Arab world is similar to variance reported for Western countries. Nevertheless, the scarcity of school bullying studies in the Arab world makes it difficult to ascertain whether the problem is going from bad to worse or from bad to better. Additional school bullying prevalence studies are required to project trends and to explain differences in prevalence rates among the different countries of the Arab world.

Prevalence of Forms and Locations of School Bullying

While various classifications of bullying behaviors are proposed, direct and indirect forms of bullying are recognized. Physical, verbal, and cyberbullying are considered direct forms of bullying whereas relational bullying is considered as an indirect form^{8,13,15,19}. Physical bullying comprises hitting, kicking, pushing, shoving, tripping, spitting, unwelcome touching, having money or other things taken or damaged or breaking belongings, and forcing the other to do things (for the bully). Verbal bullying entails teasing, name-calling, taunting, making derogatory comments, and threatening. Cyber-bullying consists of bullying through e-mail, instant messaging, web site posts, and digital messages or images sent to a cellular phone or personal digital assistant. Relational or social bullying, on the other hand, entails isolation or intentional exclusion from a group, spreading lies and hurtful rumors, and making offensive sexual or racial or religious jokes, comments, or gestures. Prevalence studies on forms, locations and correlates of school bullying in the West have been reported. School bullying occurs in a variety of settings in the school or outside the school boundaries, typical sites being the classroom, playground, hallway, gym, canteen, and toilets. Similarly, prevalence rates for forms of bullying in the USA are 21.0% for being made fun of, called names or insulted; 18.1% for being subjected to rumors; 11.0% for being pushed, shoved, tripped or spit on; 5.8% for being threatened with harm; 5.2% for being excluded from activities on purpose; 4.2% for property being destroyed on purpose; and 4.1% for being forced to do things²⁰. Finally, correlates of school bullying in different Western countries include age and sex^{6, 13, 14, 20, 22}. In general, adolescent males report higher rates of direct physical, direct verbal and indirect types of bullying than their female counterparts across all age groups¹³. Also, there seemingly is an interaction between age, sex and country as these relate to rates of bullying. For example, bullying prevalence rates for boys in Canada increase with age, but such a trend is not seen in other countries such as the United States. Similarly, verbal bullying seems to decrease with age in Israel, but not in other countries.

There is a paucity of systematic prevalence studies on school bullying locations, forms and correlates in the Arab world. A Microsoft commissioned survey²³ examined cyber-bullying in 25 participant countries, including four Arab countries. In comparison to reported average cyber-bullying prevalence rate of 37% for responders from the 25 participant countries, the prevalence rate for the Egyptian responders was 27%,

that of Moroccan responders 40%, that of Qatari responders 28%, and that of responders from the United Arab Emirates 7%. Fleming and Jacobson¹⁴ examined the correlates of sex and age (12-16 years), and reported higher prevalence rates of bullying for males than females for Morocco, Jordan, Lebanon and the United Arab Emirates but not Oman. Fleming and Jacobson¹⁴ also showed a significant downward trend in prevalence rates of bullying for Jordan and the United Arab Emirates, but not for Morocco, Lebanon or Oman.

Signs of school bullying

While bullying may not be reported for fear of retaliation and/or feelings of shame, school bullying may be suspected by consideration of academic, physical, emotional and behavioral signs and drop in grades. Common physical signs associated with school bullying include cuts, bruises, scratches, headaches, stomachaches, damaged possessions, and “missing” possessions that need to be replaced. Common emotional signs are social withdrawal and/or shyness, and emotional responses such as anxiety, depression, and anger. Similarly, behavioral signs include changes in eating habits and sleep disturbances, including nightmares, reluctance to participate in activities once enjoyed, beginning to bully siblings or mistreating family pets, sudden change in friends, and suicidal behavior in the form of attempts or threats.

Consequences of school bullying

There is considerable research on the developmental consequences of school bullying on the bully, the bullied, the bully-bullied, and the bystander^{8, 24,27}. In addition to academic poor outcome, a most serious consequence of bullying to the bully is the developmental trajectory of power and aggression. It would seem that bullying invokes in the bullies a pattern of antisocial behavior such as possession of weapons, frequent fights, alcohol and drug use, and affiliation with gang groups. The antisocial consequences of school bullying tend to be carried into adulthood in the form of pathological interpersonal disturbances²⁵ such as adult attachment disturbances, heterosexual violence (dating related aggression and sexual harassment) and domestic battering (spousal abuse, child abuse and elder abuse). Studies that have examined the effects of bullying on well-being also show significant academic, physical health and psychiatric consequences to the bullied^{14, 28,30}. Deterioration in academic performance (poor grades) because of the perception of the school as an unsafe place and its avoidance, and the developmental trajectory

of depression and low self-esteem that are carried to adulthood are serious consequences to victims of school bullying. Fleming and Jacobsen¹⁴ showed those bullied, in comparison to a non-bullied control group, reporting significantly higher rates of suicidal ideation, insomnia and feelings of sadness, hopelessness and loneliness. Similarly, Ng and Tsang²⁷ showed girl victims of bullying having comparable social impairment to boys, but reporting suffering more depression and suicide than boys. Finally, Rivers and others³¹ studied bystanders of school bullying and reported that being a witness of bullying was a significant predictor of mental health problems such as somatic complaints, depression, anxiety, and substance use.

In addition to mental health consequences, bullying has adverse effects on physical health^{32, 33}. Children who are bullied show higher rates of visits to health professionals and report more instances of physical health complaints, such as headache and abdominal pain than their non-bullied peers. It is suggested that the link between bullying and the negative health consequences may be mediated by the lower hormonal activation of cortisol in bullied children compared to their non-bullied peers^{32,33}. Nevertheless, the link between bullying and risk of mental and physical ill-health is correlational. While bullying may lead to negative mental and physical health consequences, it is equally plausible that children with mental and physical health complaints may be more vulnerable to bullying. At present, both possibilities are empirically supported^{34, 35}.

Empirical research on the consequences of bullying in the Arab world is scarce. The World Health Organization Global School-based Student Health Survey on middle-school-aged children (usually between 13 and 15 years of age) from several Arab countries (Jordan, Lebanon, Morocco and the United Arab Emirates) showed bullied students reporting significantly higher rates of sadness and hopelessness, loneliness, insomnia and suicide than a non-bullied control group of students^{14, 36}.

Theories of school bullying

Four theoretical explanations for school bullying are discerned in the Western culture: personality perspective, socio-cultural perspective, school perspective, and group and peer-pressure perspective.

Personality perspective

The personality perspective is focused on elucidating the minds of the perpetrator and victim of bullying, and

identifying environmental factors that shape their minds. More specifically, the personality perspective describes the mind of the bully in the West as externalized and that of the bullied as internalized^{8,37,39}. The externalized bully mind is predisposed to high self-esteem, aggression, power and control, defiance to social rules and authority, and little empathy for the other. In contrast, the internalized mind of the bullied is preoccupied with low self-esteem, insecurity, social isolation, anxiety, introversion, inferiority, and passivity (lack of predisposition to self-defense or retaliation).

The personality perspective to school bullying implicates the home environment in the shaping of the minds of the bully and the bullied. Whereas the familial environment of the bully tends to be punitive and authoritarian, the dysfunctional home climate of the bullied tends to be overprotective or enmeshed. The authoritarian style of parenting and parental use of punishment and over-control contributes to the dynamics of the bully 'not feeling loved' and the tendency to displace hostility and aggression to the school context^{37,40,41}. Similarly, the over protective and emotionally over involved family climate of the bullied contributes to their feelings of inferiority and social incompetence.

Systematic studies on the minds of the Arab school bully and bullied are lacking. Nevertheless, lay theories in the Arab world concerning school bullying focus on family problems (mshklat ousarieh) such as family neglect, divorce, domestic abuse (spouse and child), and harsh discipline as causal factors in peer victimization³.

Socio-cultural perspective

In contrast to the personality perspective's focus on extraordinary children with extraordinary problematic backgrounds, the socio-cultural perspective views the cause of bullying as societal and cultural. More specifically, the socio-cultural perspective posits that school bullying is a product of societal commitment to a culture of war rather than a culture of peace. For example, school-aged children growing up in socio-cultural climates that are replete with political turmoil and violence, and diversity-based discriminatory influences and in which conflict is resolved by violence and discrimination of minority groups are presumed to emulate aggressive and violent behavior as part of their daily routine^{20, 42,45}.

Consistent with the socio-cultural perspective, mass media portrayal and glorification of violence is implicated in violence among Arab youth in the Arab

world³. More specifically, it is observed that Western and Turkish movies and dramatic shows "feed a violent spirit among Arab children and youth, gives them the illusion that violence is a powerful weapon for use, and that violence is the ideal approach to resolving problems"³.

Also consistent with the socio-cultural perspective, there is anecdotal evidence to suggest that diversity-based bullying does occur in schools in the Arab world. Informal surveys of teachers in Lebanese schools, for example, suggest that peer-on-peer bullying occurs on the basis of religious sects (e.g., Shiite vs. Sunni), physical appearance (particularly crooked teeth and being overweight), and perceived sexual orientation.

School perspective

The school perspective implicates the school climate, both physical and social, as the culprit in school violence and bullying. Thus, the school perspective maintains that schools that promote good maintenance of the school grounds and support both student-friendly school rules and regulations and positive student-teacher relationships are antithetical to school violence and bullying⁴⁶⁻⁴⁹.

A variant of the school perspective is the view that school violence or bullying is symptomatic of a conscious or unconscious power dynamic or covert struggle between students, parents, and school personnel^{11,48}. Symptomatic of schools that are infected with the power dynamic are institutional tolerance of power struggles without active plans for resolution; student engagement in such antisocial activities as fights, drug/alcohol use, and gang recruitment activity; high rates of disciplinary referrals and suspensions; inordinate levels of teacher dissatisfaction; adversarial relationships between school personnel and the parents of problem children; low levels of parental involvement and proactive problem-solving; and overall poor institutional academic achievement.

While there is no systematic application of the school perspective to school bullying in Arab countries, the perspective has intuitive appeal in its relevance to school contexts that are punitive and authoritarian with respect to educating and disciplining students.

Group and Peer Pressure Perspective

The group and peer pressure perspective views student-driven bullying as a group dynamic that affects the process and outcome of peer victimization⁴⁹. The group and peer pressure perspective suggests that groups are typically formed in secondary schools, that individual

group members may be motivated by different needs and roles, and that members belonging to the in-group tend to bully those in the out-group for the purpose of achieving dominance in the in-group or for enhancing the in-group's status or power^{49,51}. The group and peer pressure perspective also focuses on bystanders in the school bullying drama. Salmivalli⁴⁹ has identified four roles bystander peers may assume in the group dynamic of bullying: assistant role (helping the bully group), reinforcer role (encouraging the bully group), outsider role (withdrawing from situation), and defender role (taking side or helping the victim group).

Consistent with the group and peer pressure perspective to bullying, empirical evidence shows that students rate peers from their in-group more favorably than peers from their out-group and that in-groups tend to target weaker peers to establish superiority or to enhance their popularity within the in-group⁵². Taken together, these findings explain why students tend to bully peers from their out-group and protect those belonging to their in-group⁵⁰.

While there is lack of a systematic application of the group and peer pressure view to school bullying in Arab countries, this social psychological perspective has considerable relevance to youth in collectivist cultures in which the self represents an appendage to the collective⁵³.

School bullying assessment

School bullying assessment methodologies allow sound evaluation of the scope of the problem in the organizational context for the purposes of understanding, planning, and evaluating comprehensive school-wide anti-bullying programs⁵. Scientifically validated school bullying assessments entail systematic observations of frequency, duration and form of bullying in various locations, and/or administration of reliable, valid and standardized interviews, surveys and questionnaires. Self-report measures can be administered to stakeholders such as students, teachers and parents to elucidate the phenomenology of peer victimization, and to plan and evaluate school-based anti-bullying interventions^{54,56}. An example of a valid and widely used self-report measure is the 38-items Olweus Bully/Victim Questionnaire (BVQ)⁵⁷. The Olweus BVQ assesses the frequency and types of bullying, frequency of reporting of bullying incidents to teacher or family, and whether teachers intervene when bullying occurs. More specifically, the Olweus BVQ asks whether or not the

student had been bullied or had bullied others in the "past couple of months." Students who report being bullied "2 or 3 times a month" or more are classified as victims, a standard cutoff point recommended by Solberg and Olweus⁵⁸. The Olweus BVQ has been used in different countries including Greece⁵⁹, Italy⁶⁰, and Turkey⁶¹, and with Arab-Americans in the United States⁶².

The development of indigenous measures of school bullying in the Arab world or adaptation of existing measures are lacking. An exception is the Arabic translation and validation of the Peer Interaction in Primary School Questionnaire (PIPSQ)⁶³ in Egypt and Saudi Arabia. As a measure of bullying and victimization, the Arabic translation of the PIPSQ was shown to have cultural and sex-based factorial invariance. The availability of psychometrically sound measures of school bullying in the Arabic language such as the Arabic version of the PIPSQ is a prerequisite for assessment and intervention initiatives in the Arab world.

School bullying prevention

A culture of bullying in schools is antithetical to the right of students and school personnel for a safe school environment. In many Western countries, national policies and legislation that prohibit harassment, intimidation, and all forms of bullying including cyber bullying are advanced (see appendix A), as are comprehensive school focused and evidence-based anti-bullying prevention programs.

While different school-based anti-bullying programs have been described, the Olweus Bullying Prevention Program stands out as a universal initiative that targets elementary, middle and junior high schools to reduce bullying behavior. The Olweus Bullying Prevention Program aims at restructuring the school environment as an arena for the occurrence and perpetuation of bullying, and comprises three main intervention components: individual, classroom, and school-wide. Individual-level interventions focus on individual perpetrators and victims, and often involve discussions between students, parents, teachers and counselors. For example, individual bullies may be trained in empathy⁶⁴ while teachers and bystanders may be involved in self-efficacy training for the effective handling of bullying episodes^{8, 65,67}. Class-level interventions involve classroom meetings about bullying and peer relations, establishment and enforcement of bullying-specific class rules, and teacher meetings with parents and students. Finally, school-wide interventions focus on the formation of a Bullying

Prevention Coordinating Committee, confidential student assessments to evaluate the extent and nature of bullying within a particular school, development of specific school rules against bullying, increased student supervision at the times and locations where bullying is most likely to take place, and student-teacher conferences to discuss issues related to bullying and plan intervention strategies.

While culture-relevant program refinements may be required, large-scale evaluation studies indicate that the Olweus Bullying Prevention Program results in significant reductions not only in bullying and bullying victimization but also in such antisocial behaviors as vandalism, alcohol use, fighting and theft, as well as improvements in classroom order and more positive attitudes towards school work^{68,70}. Furthermore, in a meta-analysis comparing 30 different intervention programs, the Olweus Bullying Prevention Program showed the most significant decrease in bullying behavior in schools in which it was adopted⁷¹. The general effectiveness of the Olweus Bullying Prevention Program is consistent with the reported effectiveness of school-based programs intended to prevent violent behavior among school-age children and youth⁷².

The design and implementation of school-based anti-bullying programs in the Arab world to reduce the harmful effects of bullying are lacking. In addition, and with exceptions such as the United Arab Emirates, there currently are no national visions that are antithetical to the culture of bullying in the school context. While some private schools such as the American Community School in Lebanon⁷³ include in their student handbooks guidelines about dealing with bullying when it happens, national policies and legislation that support school-wide implementation of anti-bullying program initiatives for the eradication of the problem in the educational system in the Arab world are needed.

Summary and conclusions

School bullying is a serious issue that should be addressed at international and local levels. School bullying occurs in various Arab countries such as Egypt, Jordan, Lebanon, Saudi Arabia, and the United Arab Emirates. In addition to the need for more systematic research on forms, signs, locations and consequences of school bullying, national policies and school-based anti-bullying program initiatives are required in the Arab world.

Appendix A Bullying Legislation in Select Countries

Law Name, Date and Country	Schools' Responsibility
Policy/Program Memorandum No.144, 2009 - Ontario, Canada ⁷⁴	The schools are required to include a school-wide bullying prevention plan as part of the School Improvement Plan in which they aim to define bullying, raise awareness about bullying, develop strategies to prevent bullying and intervene when it happens. These goals are reached through extensive training programs for all members of the school community.
Analysis of State Bullying Laws and Policies, U.S Department of Education, 2011 – United States of America ⁷⁵	Most states have proposed requirements to develop district policies to prevent bullying and intervene in case it happens. Thirteen states argue that they have jurisdiction over bullying that happens off campus as it affects students at school. Each state has its own policies to deal with bullying but the main focus is on strategies to prevent bullying and develop intervention strategies in case it happens. Thirty-six states also have strategies to tackle cyberbullying.
European Charter for Democratic Schools Without Violence, 2004 – Europe ⁷⁶	The main aim of the charter is to raise awareness about violence and train school staff and students to prevent occurrences of violence. In case of a violent incident, the schools are advised to tackle it immediately.
Education and Inspections Act, 2006 – United Kingdom ⁷⁷	Schools must apply disciplinary measures to students who bully their peers. These measures must be fair, consistent and reasonable. It is also encouraged that schools involve parents and pupils in this process to educate them about bullying to prevent future occurrences.
لائحة الانضباط السلوكي للطلبة بالمجتمع المدرسي United Arab Emirates ⁷⁸	The consequence of such undesirable behavior is to ban the student from attending classes for up to three days following which he is to be seen by the schools social worker and the school psychologist in order to prevent such future occurrences.

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ملخص

الهدف: يعتبر العنف المدرسي مشكلة عالمية ذات تبعات أكاديمية، طبية، إجتماعية و نفسية جدية. لذا تهدف هذه الدراسة لمراجعة النظريات النفسية ، الشعبية و العلمية ، المقترحة لفهم العوامل الثقافية، الإجتماعية، الشخصية و المدرسية المتعلقة بالعنف المدرسي في المشرق العربي، و تلك المقترحة لتحسين السياسات الوطنية و برامج الأبحاث و برامج الحد من العنف المخصص للمدارس. **الطريقة:** تمت مراجعة الأبحاث الموجودة المتعلقة بالعنف المدرسي. **النتيجة:** بالرغم من أن ظاهرة العنف المدرسي كانت من المواضيع الشاغلة للأوروبيين و الأمريكيين الشماليين لعقود طويلة، فإن الاهتمام بالعنف المدرسي في العالم العربي هو ظاهرة حديثة. تشير الدراسات المحدودة عن انتشار العنف المدرسي إلى أرقام متفاوتة: 20.9% من الطلاب المراهقين في المدارس الإعدادية قد بلغوا عن عنف في الإمارات العربية المتحدة ، 31.9% في المغرب، 33.6% في لبنان، 39.1% في عُمان و 44.2% في الأردن. وتبين أن الذكور أكثر تورطاً في العنف المدرسي مقارنة بالإناث. **الخلاصة:** ارتأينا بأن هناك حاجة إلى مزيد من الأبحاث في المشرق العربي عن أشكال، علامات، مظاهر و تبعات العنف المدرسي، بالإضافة إلى السياسات الوطنية و برامج الحد من العنف في المدارس.

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Report: School mental health project in Somalia

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جبريل حندوله، سوسانه وايتول، دانييل فيكادو

Abstract

A School psychiatric service has been established in Borama, Northern Somalia intended to raise mental health awareness in schools for both teachers and pupils about psychiatry, their recognition and referral to the outpatient department in Amoud University teaching hospital. The activities of the mental health project took place over six months and included workshops for school teachers. It was endorsed by both Amoud University and Ministry of Education of Somaliland. Within this period, we were able to work with school teachers, local educational board and parents on service development. They learned about psychiatric and behavioral disorders, identified 300 individuals who required referral to the hospital for consultation where they received free access to treatment and follow up. After the pilot project, the patients continued to receive therapy making Borama the first and the only town in Somalia where school students receive mental health care.

Key words: school mental health, Somalia, service development

Declaration of interest: Funding from Tropical Health and Educational Trust (THET), support from the King's Centre for Global Health, King's College London.

Introduction

Amoud University is located in Borama, a town in Somaliland, which is an autonomous region in Northwest Somalia that declared its independence from rest of Somalia in 1991 and has no international recognition. This territory is known in Arabic as Ard Al Soomaal. It is a former British protectorate uniting with the Southern part of the country in 1960 making up the Somali republic, a predominately Sunni Muslim country in the horn of Africa. The Amoud Medical School was established in 2000 being the first medical school in Somalia after the collapse of the Somali government. The country had been recovering from destruction following the civil war and health institutions were reestablished¹. "The Arab world is taken to mean the 22 members of the Arab League, accounting for 280 million people. The region has the largest proportion of young people in the world: 38% of Arabs are under the age of 14 years"². Somalia is a member of these states.

King's College London and an international charity organization in Britain The Tropical Health and Educational Trust (THET) with funding from the United Kingdom office of the Department of International Development (DFID) programs in Somalia had been supporting medical education in Somaliland since 2000². The partnership is known as King's THET Somaliland Partnership (KTSP).

(KTSP) activities have included teaching trips by British clinicians to provide medical education to Somali medical students. As there were no psychiatrists in Somaliland, the Somali medical schools requested support from KTSP partners to provide psychiatry training for medical students and to support the addition of psychiatry in the final year medical school leaving exam. British external examiners for Somaliland medical school exams have been provided by KTSP since 2007³. In the absence of local psychiatric leadership, one activity of KTSP was to mentor local junior doctors graduating from the two medical schools in Somaliland, namely Amoud and Hargeisa Medical Schools, with an interest in psychiatry. These junior doctors have been co-tutors on KTSP mental health teaching, local examiners, established mental health services and took the lead to advocate mental health in Somaliland in a position known as KTSP Mental Health Representatives^{4,5}. The author was among the first doctors selected for this post. The Amoud Mental health project which included school mental health outreach is the first school mental health service of its kind in Somalia⁵.

The Amoud-THET mental health project was set up in partnership with The Somaliland Ministry of Education in the Northwestern part of the country bordering Djibouti and Ethiopia.

Somalia is one of the least developed countries in the world. The primary objective of knowledge is to advocate the concept of optimal mental health and psychosocial development"⁶. "Children and adolescents in low and middle income countries (LAMIC) constitute 35–50% of the population"⁷ For example 10 percent of children have diagnosable mental health disorders in India⁸ while a study in the United States reveals that more than 20% of children and adolescents have mental health problems.⁹

There have been high school students presenting to the emergency room of the Amoud University teaching hospital following a suicide attempt and a carefully collected history relating to these individuals revealed that depression was the most common diagnosis in addition to bipolar affective disorder or schizophrenia. The aim of the current project was to investigate how mental health disorders present in Somaliland schools and develop a mental health strategy around promotion and intervention.

Initial steps of school mental health service

In order to establish the need, the project started with field visits and evaluation in Borama schools three months before the start of the project to learn about schools and mental health conditions. "Developing mental health services must be tailored to local needs and the population it serves"⁷ so we conducted a basic situational study in Borama before starting the service. A mental health program was separate as the schools specially asked for the mental health service.

School mental health workshops

The mental health project team organized workshops for school teachers, school inspectors, officials from the regional educational board and parents from different schools. The authors led the sessions with the help of the Amoud University. The sessions were designed for teachers with simple English, medical jargons removed and Somali/Arabic words were used like depression explained in Arabic for those who speak Arabic to understand the lectures easier. The workshops were for one week in December 2011 and the service delivery for patients started in January 2012 to the present day.

Launching mental health services for school students and teachers

After the workshops, the schools began to refer patients to the outpatient service. Teachers chose Thursday to refer the school students and Saturdays for school

teachers for treatment. Every school had one teacher as a contact person who had the telephone lines of the psychiatric mental health outpatient unit for referring patients. They had several students whom the teachers and parents together came in school days straight to the service for treatment. Thursdays were not busy days because classes end earlier and some schools don't work on Thursdays so students and teachers alike had time to come for consultations.

The school pupils and teachers benefiting from the service whether they are in private or public schools were equal in service provision. Patients referred their family members, relatives and those they knew were suffering from mental health difficulties or substance abuse.

Results

The pre and post teaching session feedbacks showed that the teachers were aware that mental health difficulties existed, but believed this was due to the civil war or caused by Jinn (evil spirits). After the sessions when they learned about the range of mental health disorders that can affect children, adolescents and adults they recognized that the conditions they encounter may be psychiatrically-based. One example that attracted our attention was that conversion disorder was widely assumed to be caused when Jinn enter the human body and create disturbance or distress. During a session about somatization, workshop participants stopped the author and stated that every school had this condition every day and they tended to stop teaching for up to an hour, which was an inefficient use of time. When asked their views on the importance of psychiatric services for schools 98% of teachers polled responded favorably while the remaining 2% indicated that they did not believe in mental health.

Discussion

There were six high schools within Borama which were part of the pilot phase – namely: Al Aqsa School, Umayya Bin Kacab (UBK), Al-Nour, Hawa Tako, Sh. Ali School and Ayatiin School. Two schools were public and four were privately run by Islamic charity organizations as shown in Table 1. College students also received free treatment from the service either via self-referral or through referral by their professors. Borama has two Universities - Amoud and Eelo University. The students were coming to our service when they knew it was free clinic for students. The team provided privacy and

support to college students who were unemployed even after their education.

The majority of students came from poor families or reported having lost some of their family members in the civil war. Most of the patients were born during the war years although some teachers were older and had witnessed violence or had experienced other life stressors such as family problems or joblessness for years until schools were working again.

Common disorders include depression, anxiety disorders, bipolar, etc. Some students reported a history of suicide attempts, self-harm or homicide.

The teachers and the ministry told one author of the current report about stories concerning teachers and students who were appeared to be suffering from mental health disorders.

Childhood psychiatry is not commonly addressed in Somalia due to the fact that the physicians who treat psychiatric patients were trained in general adult psychiatry. In many parts of the country, nurses are the

only mental health professionals who receive training from the World Health Organization (WHO). For example, some patients had co-morbid attention deficit hyperactivity disorder (ADHD) with bipolar disorder meeting criteria's of DSM IV-TR or ICD-10 for both disorders. We defined the bipolar disorder only making our presentation simple as ADHD medications are not available in Somalia although some individuals report obtaining medication from their relatives in Europe who could take prescriptions and refills for their follow family members in Somalia.

To our knowledge, schools in Somalia had not previously received health education like this.

In our work, the author had been paired with child and adolescent psychiatrist from King's College London. The child psychiatrist supported the person responsible in Somalia via online tutorials through a web portal linking Somaliland and the King's College Psychiatrists at www.medicineafrica.org.¹⁰. There were weekly or monthly based tutorials which supported the team in Borama who worked with the patients.

Table 1 showing student and teacher distribution in school mental health service

		N =301 (100%)
Students	N=240 (80%)	Age distribution 12-30Y
Male	40(20%)	
Female	192(80%)	
Teachers	N= 61 (20%)	Age distribution 25-60Y
Male	55(90%)	
Female	6(10%)	
Schools	Students N=240(%)	Teachers N=61 (%)
Sheikh.Ali (public)	39(16%)	17(27.8%)
Al-Aqsa	46(19%)	13(21.3%)
UmayyaBin Kacab(UMB)	59 (24%)	11(18.0%)
Hawa-Tako (public)	32(13%)	9(14.8%)
Al-Nour	46 (19%)	5(8.2%)
Ayatiin	20(8.3%)	6(9.8%)

There are arguments for and against having mental health services in hospitals or in community settings, such as schools. In Africa, there is need for community-based mental health services since there are currently very few mental health professionals and facilities¹¹. Consequently, both hospital and community care were combined in our work.

According to Thornicroft and Tansella¹², child and adolescent services exist in developed countries whereas countries like Somalia are better placed to host basic mental health services. It follows that adolescent

psychiatry would be largely the domain of more developed countries.

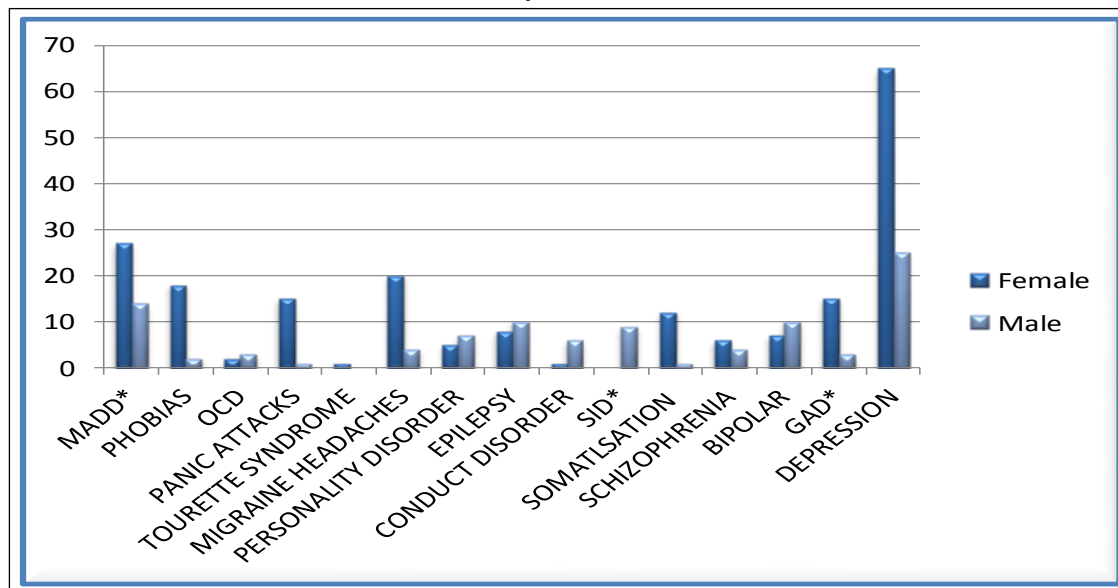
In our opinion, the outreach project described in the current report, which benefited school children, was Possible with the support we received from our partners in global health center at King's College London.

Clinical and academic support to the local doctor and his team helped treat patients. This is a new approach whereby those in the north were working at a distance with a southern institution. Development of clinical skills, filling knowledge gaps and overall support to the

service via regular online tutorials were the basis of the service described in the current report. The following figure demonstrates the different presentations among school teachers and students during the pilot phase.

Both in the outpatient department and within schools as Teachers identified some students after the workshop.

Figure 1 Distribution of neuropsychiatric disorders among teachers and students seen in the mental health outpatient clinic January – November 2012



Note: MADD*=Mixed depression and anxiety disorders, OCD*=Obsessive compulsive disorder, SID*=substance induced psychosis e.g.; Khat, GAD*=Generalized anxiety disorder

Conclusion

The mental health systems of Somaliland are understandably weak given the instability of the region.¹³ mental health services in Somalia currently are among the worst in the world. A study conducted in Hargeisa showed that two out of five people in Northern Somalia had a recognizable mental health disorder suggesting that psychiatric disorders are¹⁴ abundant in this part of country. The children who benefited from mental health intervention were those born during the civil war in Somalia. This part of the horn of Africa is known for its wars, famines, draughts and other humanitarian disasters. School teachers and the parents of the children benefited from this service. More than 300 students and teachers who received support now report being able to study and instruct better. The teachers in a post intervention questionnaire explained that the level of school violence decreased. Student drop outs reduced which needs to be followed up for a while to support this argument and some teachers who were treated remained in work. Our intervention was free of charge which attracted students. Poorly paid teachers were also able to attend the clinic. The interventions offered were experienced across Borama. The parents were better able to identify

behavioral disturbances in their children. The clinic receives students with their parents and sometimes, to our surprise, students also brought their parents for treatment.

Children whose education was stopped due to treatable mental health disorders received treatment and were then able to continue their studies, attended exams and pass to the next stage of their education. We plan to sustain this and work with school teachers, students and their parents. This was a big opportunity to a deliver good service and demonstrated how global partnership in mental health can make difference even in one of the most isolated countries on Earth, which is an achievement that meets Goal 8 of the Millennium Development Goals¹⁶.

Childhood mental health care integration into primary health care had been not been attempted in a long time. Training general practitioners about childhood behavioral and psychiatric disorders was tried previously in several countries¹⁵.

A primary school project would be the next step in the school work through funding by the Swedish Department

for International Development (SIDA) in partnership with Amoud University and ForumSyd, a Swedish international nongovernmental organization. This is new work in a post conflict setting that requires further study to gain a better view of the visibility of such a work in an environment like our setting. Working in multi-disciplinary way and coordinating work is difficult even in developed nations¹⁷ so it remains the case that further work needs to be done.

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المخلص

لقد تم تأسيس خدمه الصحة النفسية المدرسية في مدينة بوراما، شمال الصومال، بهدف زيادة الوعي بالصحة العقلية في المدارس لكل من المدرسين والطلاب في مجال الصحة النفسية. كان الهدف من هذه الخدمة والتي استمرت 6 أشهر، هو معرفة و تحديد الحالات المرضية بين الطلاب ثم ربطهم بقسم الرعاية الخارجية بمستشفى التعليمي لجامعة عمود. وتشمل هذه الخدمة على ورش عمل للمدرسين في المدارس . خلال هذه الفترة الزمنية استطعنا أن نعمل مع معلمي المدارس، لجان الإدارة التربوية المحلية، وباقي الشركاء على تطوير هذه الخدمة.

بحيث تمكنت الأطراف المشاركة من تعلم وإدراك الإضطرابات النفسية والسلوكية. بالإضافة إلى ذلك تمكنا من تحديد 300 حالة من بين الطلبة اللذين كان عليهم مراجعة المستشفى لأخذ الإستشارات اللازمة. وبالفعل حصلوا على الخدمة الصحية النفسية، والعلاج ، والمتابعة الصحية مجاناً. بعد الإنتهاء من هذا المشروع الرائد استمر المرضى بأخذ العلاج مما جعل مدينة بوراما المدينة الأولى والوحيدة في الصومال التي يمكن لتلاميذ المدارس فيها أن يحصلوا على رعاية صحية نفسية .

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Gender differences among patients with social phobia in Egypt

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الإختلافات بين الجنسين في المرضى الذين يعانون من الرهاب الإجتماعي في مصر

مصطفى عمرو، محمود الوصيفي، عبد الهادي الجيلاني، سوزان رايس

Abstract

B **background:** Social Phobia (SP) has been shown to be more prevalent in women than men in Western society (Kessler et al., 1994). Women also tend to have more environmental risk factors for social phobia compared to men (Xu et al., 2012). However, very few studies have been performed in the Arab countries in this context. The aim of the present study was to assess the prevalence of SP amongst patients attending the psychiatric outpatient clinics of Mansoura University Hospital, Egypt. **Material and Methods:** During the study period, a total of 3572 psychiatric outpatients were recorded in the clinic and 52 patients (24 males, 28 females) satisfied the DSM-IV criteria for the diagnosis of SP. We also assessed gender differences amongst the SP group in such factors as rates of attendance, socio-demographic characteristics, comorbidities, severity of SP and early adverse factors. **Results:** Social phobia was found in 1.5% of the sample (0.7% in males, 0.8% females). Female patients were less likely to report physical or sexual abuse as compared to males. There was no difference in comorbidity patterns or suicidality among patients with SP in relation to gender. **Conclusions:** Although our sample is not representative of the whole Egyptian population, we conclude that prevalence of social phobia is similar in men and women. Females with social phobia reported lower rates of sexual abuse and similar comorbidity patterns or suicidality. Further studies assessing practice approaches to diagnose and treat social phobia should be tailored in an Arabic context to help detection of early adverse environmental risk factors particularly those related to sexuality or personal issues.

Key words: Social phobia, gender, abuse

Declaration of interest: None

Introduction

Social phobia is a psychiatric disorder marked by evident and constant fear and anxiety in situations involving social evaluation or unfamiliar people.¹ Epidemiologic studies suggest that the lifetime community prevalence ranges from 3% to 13% in western countries.^{2,3}

Gender differences appear to be important in the genesis of this disorder. The disorder appears more common in women who tend to report more lifetime social fears and internalizing disorders and were more likely to have received pharmacological treatment for SP, whereas men were more likely to fear dating, have externalizing disorders, and use alcohol and illicit drugs to relieve symptoms of SP. Gender is also associated with environmental factors in individuals with SP.⁴ Specifically, SP in girls in western countries is more strongly associated with parental conflicts, childhood physical abuse, maternal mania and early pubertal maturation.^{5,6}

The majority of studies on SP have been conducted in Western Europe and North America with only a few

recent studies conducted in the Arab world.^{7,10} Arab authors have consistently reported that cultural factors, arising mainly from the subordinate position of the women in these communities influence the rates of attendance and management of psychiatric disorders amongst that gender group.^{9,11,12} Mule and Barthel¹³ described the social changes in Egypt, where women's traditional "mono-role" in the family of attending to marital duties and mothering has recently given way to a "multirole" model where they are much more active outside the home; for example, in the workforce where participation has increased from 15.4 percent in 2001 to 21 percent in 2010. Psychosocial risks accumulate during life and increase the risk for a wide range of psychiatric disorders such as depressive episode, mixed anxiety and depression, generalized anxiety disorder, panic disorder, phobia, and obsessive-compulsive disorder, eating disorders, posttraumatic stress disorder, alcohol and drug dependence, and suicidal behavior.¹⁵

In relation to SP, it is possible that women in Arab countries are even less likely to attend clinics for the disorder because of feelings of exposure and embarrassment, especially in the context of the role

change towards their independence. Furthermore, women may be less willing to reveal early adverse events, particularly sexual assault, that may traditionally cast shame on themselves or their families.

The aim of the present study was to assess the prevalence of SP amongst patients attending the psychiatric outpatient clinics of Mansoura University Hospital, Egypt. We assessed gender differences amongst the SP group in terms of rates of attendance, socio-demographic characteristics, comorbidity and severity of fear. Based on previous reports from Arab countries^{7,9}, we hypothesized that men with SP would attend clinics more commonly than women. We also examined whether women with SP were less likely to report adverse events, particularly abuse in their early lives, compared to men. Childhood abuse is operationally defined as any act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation.¹⁰

Methods

The present study is a prospective study conducted in the outpatient clinics at Mansoura University Hospital, Egypt over a period of four months. All patients were identified clinically according to DSM-IV and then the SP patients were interviewed with the Arabic version of the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (SCID)¹⁶ to ascertain the diagnosis and assess other psychiatric disorders, e.g., depression, anxiety disorders, and substance abuse. All patients provided informed consent and the study was approved by the College Authority Ethics Committee.

Measures

Socio-demographic information:

A chart review was done to obtain information regarding age, marital status, education, income, residence, employment and duration of illness in years, family history of SP, history of early separation from the parents, school or work difficulty and comorbidities. Trauma Assessment for Adults – Brief Revised Version (TAA): is a 12-item questionnaire that has been used successfully to screen for traumatic experiences in a variety of populations including those with psychiatric illness.¹⁷ For the purpose of the present study; we were concerned with five items. Three were specifically related to sexual victimization: "Did you ever have sexual contact with anyone who was at least 5 years older than you before you reached the age of 13?",

"Before you were age 18, has anyone ever used pressure or threats to have sexual contact with you?", and "At any time in your life, whether you were an adult or a child, has anyone used physical force or threat of force to make you have some type of unwanted sexual contact?" The two other items assessed whether the participant had ever been assaulted either with or without a weapon.

*Liebowitz Social Anxiety Scale (LSAS)*¹⁸

Participants were administered the Liebowitz Social Anxiety Scale (LSAS). The LSAS is a clinician-administered instrument that assesses fear and avoidance in 24 social situations. The amount of fear or avoidance that an individual experiences in each situation is rated by the clinician on a 4-point scale that ranges from 0 (no fear/avoidance) to 3 (severe fear/avoidance). Separate scores for social interaction versus performance situations may be calculated. The LSAS has been shown to have good internal consistency and correlates well with other measures of social anxiety.¹⁹

The Hamilton Anxiety Scale (HAMA) is a rating scale developed to quantify the severity of anxiety symptoms consisting of 14 items, each defined by a series of symptoms. Each item is rated on a 5-point scale, ranging from 0 (not present) to 4 (severe).^{20,21} The questionnaire is meant to rate the severity of symptoms such as mood, tension, physical symptoms and fears. The doctor interviewed patients and recorded the answers on the test, giving them a rating from 0-4. Upon completion of the test, the results are added up and based on the total giving a general idea on the severity of anxiety.

The Hamilton Rating Scale for depression (HAM-D)

The Hamilton Rating Scale for depression (Ham-D) designed to measure the severity of depressive symptoms in patients with primary depressive symptoms and is the most commonly used observer rated depressive symptoms rating scale. Its internal consistency (Cronbach's alpha) was 0.76²², and 0.92.²³ It is a checklist of items that are ranked on a scale of 0-4 or 0-2. Scoring: very severe >23, severe 19-22, moderate 14-18, mild 8-13 and normal < 7.²⁴

Data analysis

Data was analyzed using the SPSS program version 16. Quantitative variables were presented as means± standard deviation. Chi square or Fisher's exact test were used for group comparison of categorical variables, as appropriate. Unpaired t-tests and Mann-Whitney test were used for group comparisons of continuous

variables. The $P \leq 0.05$ level was considered statistically significant.

Results

During the study period (from 1st June to 30th September 2010), a total of 3572 psychiatric outpatients were recorded in the clinic. A total of 55 patients satisfied the DSM-IV- criteria for the diagnosis of SP. However, only 52 patients (24 males, 28 females) had a positive diagnosis with SCID interview with a clinic prevalence rate of 1.5% (males=0.7%, females=0.8%). The mean age \pm SD of the total sample was 20.5 ± 2.7 and the range was 16 to 25 years. Their mean duration of illness was

7.9 ± 4.6 years. Approximately one third of the sample (30.77%) was married and a similar percentage (30.76 %) had a family history of SP. Most of the sample came from urban areas (73%) and less than half of the sample had less than secondary school education (46.2%) and was employed (46.15 %). Men and women did not differ significantly in age, education work status, history of early separations from the parents and school/work difficulties. Table 1 displays the demographic data among patients with SP stratified by gender. Women had more unsatisfactory income and were more likely to dwell in urban areas ($P=0.03$).

Table 1. Demographic data among patients with SP stratified by gender (N= 52)

	Males (24) N (%)	Females (28) N (%)	Significance test
Age (Mean \pm SD)	20.8 \pm 2.7	20.3 \pm 2.7	T=0.7, P=0.44
Marital status:			$\chi^2=0.1, P=0.7$
Single	16(66.7)	20(71.4)	
Married	8(33.3)	8(28.6)	
Educational status:			$\chi^2=0.3, P=0.6$
Below secondary education	12(50)	12(42.9)	
Above secondary education	12(50)	16(57.1)	
Working status:			$\chi^2=2.9, P=0.09$
Working	8(33.3)	16(57.1)	
Not working	18(66.7)	12(42.9)	
Income: Satisfactory *	24(100)	22(78.6)	FET, P=0.03
Unsatisfactory	0(0)	6(21.4)	
Residence: Rural	10(41.7)	4(14.3)	$\chi^2=4.9, P=0.03$
Urban	14(58.3)	24(85.7)	

* Satisfactory incomes means sufficient enough to satisfy living needs of the individual, e.g., accommodation, food, transportation, clothes, costs of education for children and health care, without being in debt

Women recorded more physical comorbidities (two cases of both acne vulgaris and strabismus) ($P=0.01$) than their male counterparts. Reports of childhood abuse were greater in men ($P=0.005$). In addition, physical abuse

(reported among 23.1% of cases) was more frequently indicated by men (8 males versus 4 females, while the other four male patients reported sexual abuse (Table2).

Table 2. Clinical data among patients with SP stratified by sex (N=52)

	Males (24) N (%)	Females (28) N (%)	Signif. test
Positive history of childhood abuse	12(50)	4(14.3)	$\chi^2=7.7.4, P=0.005$
Psychiatric comorbidity	16(66.2)	18(64.3)	$\chi^2=0.03, P=0.9$
Comorbid medical diseases*	0(0)	4(14.3)	FET, P=0.01

FET = Fisher's Exact test*

There was no difference in psychiatric comorbidity patterns among patients with SP by gender (16 cases (66.2 %) for males, 18 cases (64.3%) for females, $p=0.6$). The most common in males were depression (seven

cases), generalized anxiety disorders (five cases) followed by drug abuse (three cases) and panic disorder (one case) whereas in females the comorbid disorders were depression (nine cases), generalized anxiety

disorders (four cases) followed by specific phobia (three cases) dysthymia (two cases). Moreover, participants' scores on the LSAS subscale (fear and avoidance), the

total LSAS score, and HAMA and HAMD, including suicidality scores, were similar among male and female patients (Table 3).

Table 3. Psychometric data among patients with SP stratified by sex (N=52)

	Males (24) N (%)	Females (28) N (%)	Sig. test
LSAS-performance Fear	15.3±7.6	15.9±7.2	t=0.3, P=0.8
LSAS-performance Avoidance	16.9±7.8	16.9±9.3	t=0.4, P=0.7
LSAS-Social Fear	15.1±5.9	16.7±4.6	t=1.1, P=0.3
LSAS-Social Avoidance	14.1±4.5	15.3±7.6	t =0.7, P=0.5
LSAS Fear Subscale	29.3±12.9	32.6±11	t=0.99, P=0.3
LSAS Avoidance Subscale	30±10.5	29.9±14.8	t=0.03, P=0.97
LSAS Total Score	59.3±22.4	62.5±23.7	t=0.5, P=0.6
HAMA score	36.9±6.9	38.1±6.4	t=0.7, P=0.5
HAM-D score	17.3±8.2	18.9±7.1	t=0.75, P=0.45
Suicidality	1.30±0.41	1.41±0.49	P=0.31

Discussion

The present study found that the prevalence of SP among psychiatric outpatients attending Mansoura University Hospital, Egypt was 1.5 % (0.7% in males, 0.8% females) which is similar to the findings of a number of studies in Lebanon, Iraq and Oman^{25,27} and lower than rates reported in Western countries (2.6% - 7%).^{28,30}

However, in a report from Saudi Arabia, SP was reported to be a notably common disorder among Saudis and constituted approximately 13% of all neurotic disorders seen at a large clinic in Riyadh.⁷ The plausible explanation for this high rate was the strict discipline in the Saudi culture with rigid moral codes and rituals. Adherence to all social demands could be stressful and requires discipline and self-control that is exercised at the expense of personal autonomy. Furthermore, one who has made a bad impression in public is likely to retain a poor reputation permanently - although the impression is subsequently shown to have been a false one. Taken together, these factors may affect those with unique personality traits or with a strong sense of individuality, thus increasing the incidence of SP.

Although women are more likely to receive a diagnosis of SP in epidemiological studies in the West, men and women present for treatment of SP in roughly equal proportions.³¹ In the absence of population data to

establish prevalence rates amongst women and men in our community, our findings support a pattern of roughly equal numbers of affected men and women. Although Chaleby⁷ reported low incidence of SP in women that might result from the situation that Saudi women are confined, not exposed to a variety of social situations and their social gatherings are mostly recreational with minimal rituals. An important finding of our study, however, relates to reports of early abuse by men and women with SP. Bandelow et al.,³² reported higher rates of SP in adults with a history of abuse than matched control group (SP: 10.0% versus healthy controls: 5.0%).

In this study, female patients were less likely to report physical or sexual abuse as compared to males. These findings do not accord with previous western studies.^{33,34}

It seems like that the taboo on discussing sexuality, particularly amongst women in a conservative society such as Egypt is still prevalent.³⁵ Loss of virginity in a girl before marriage is considered highly dishonorable and detrimental to the girl's future.³⁶ Women are often reluctant to report abuse to the police or judge as well as their own families. A study of female homicides in Alexandria, Egypt, found that 47% of all women killed were murdered by a relative after being raped.³⁷ Another concern is the alarming lack of abuse detection by health

professionals. Treatment reports of abuse are often denied, minimized, interpreted as delusional or ignored.³⁵

On the other hand, in Egypt, one recent study conducted surveyed 98 patients with schizophrenia in the outpatient psychiatric clinic of a University Hospital, reported that Sexual abuse was reported among 19.4% of cases and it was significantly more reported among males compared to female patients.³⁸ Moreover, a survey study of prevalence of child abuse in a sample of university students in Egypt revealed that those male students reported having suffered moderate and extreme sexual abuse more than their female counterparts.³⁹

The scores of subjects on the LSAS subscale (fear and avoidance), the total LSAS score, HAMA and HAM-D were similar among the male and female patients participated in the present study. These findings are incongruent with previous studies conducted in the western world.^{41, 5}

One should note, however, that recognition of symptoms depends not only on the presence of suffering in affected individuals, but also on the cultural concepts of what constitutes illness. For many Arabs, especially females, social or emotional problems cannot be expressed as such and tend to be defined in somatic terms and expressed by body language or perceived as delusory cultural beliefs.⁴²

The social anxiety measures developed in the western world in the context of morbid fears are patterned by cultural factors that decide the nature of the objects of the fears. EL-Islam⁹ in his study of SP among Qatari women reported that after death, fears dominated by panic attacks and SP mirrored shame rather than guilt about failure to fulfill accepted norms of social behavior. Also, fears which centered around authority figures and dealing with opposite sex and sex subjects per se rather than fear of sex in conjunction with aggression as in western culture are prevalent in Arab culture.⁴³

Cogle et al., 2009,⁴⁴ reported associations between anxiety disorders and suicidality. Social anxiety disorder (SAD), posttraumatic stress disorder (PTSD), generalized anxiety disorder (GAD), and panic disorder (PD) were found to be unique predictors of suicidal ideation while only SAD, PTSD, and GAD were predictive of suicide attempts. Similarly, Cox et al., 1994⁴⁵ used the original National Institute of Mental Health Epidemiologic Catchment Area (ECA) suicide

questions in a group of patients with social phobia and found that 34% of the patients with social phobia reported suicidal ideation in the past year, but only two patients actually made suicide attempts in the past year. Five (12%) of the patients⁴⁷ with social phobia reported making suicide attempts at other times in their lives. In the present study, both genders shared a lower scoring on the suicidality component of the HAM-D scale. This is not surprising since Egypt is a Muslim conservative society with strong beliefs that self-inflicted deaths are blasphemous and punishable in the afterlife.⁴⁴

In the present study, the younger age of patients with SP can be explained by the notion that the sample was relatively young (16-25 years old) and may have been experiencing a competitive life as there was lack of job opportunities, slow economic growth and low productivity compared to the experiences of older age patients and that this distinction likely increased the risk for psychiatric disorders in general and SP in particular.⁴⁶ Also, SP has to be reported in young Saudi patients who are more likely to have developed their own ideas and values and, therefore, are less willing to conform to a ritualistic social milieu. It also found that SP started in adolescence, which is consistent with other studies from the United States² and Arab countries.^{7,9} In a recent study, Kelly et al., 2013⁴⁷ compared social phobia versus other anxiety disorders, such as body dysmorphic disorder, and found that SP participants had a significantly earlier age of onset and lower educational attainment than BDD participants

Limitations

The present study has some limitations. First, it was a cross-sectional study, which limited our ability to make causal inferences. Second, our study included a small clinical sample from only one institute which might limit the generalizability of findings to other parts of Egypt or the Arab world. Third, TAA and HAMA have not been standardized on Arab patients and hence their reliability and validity remain questionable. Finally, the LSAS items do not fully assess the cultural contexts and situations that are anxiety provoking for men and women in Arab cultures.

Conclusion

Our study tested questions about SP in an Arabic context. Social phobia was found in 1.5% of the sample (0.7% in males, 0.8% females) and there was no difference in physical or psychiatric comorbidity patterns or suicidality among patients with SP in relation to

gender. In the absence of population data concerning the gender balance of social phobia in the Egyptian community we cannot determine whether women are under or over represented in this clinic population. Our study highlights the importance of future epidemiological studies examining the prevalence, comorbidity patterns and suicidality in both genders. Our hypothesis that prevalence of early sexual abuse would be lower amongst women was supported. Although the variety of the reports cannot be assessed, it seems likely given the consistently higher prevalence of sexual abuse in women with mental disorders worldwide.^{48,49}

Those cultural taboos that inhibit women from disclosing such events may have led them to under-report their symptoms and this reflects an important constraint in assessing these adverse experiences as risk factors to SP and indeed a wider range of mental disorders. We recommend that policy and practice approaches to diagnosing and treating social phobia should be tailored in an Arabic context to help detection of early adverse environmental risk factors particularly those related to sexuality or personal issues.

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الملخص

الخلفية: وجد أن الرهاب الاجتماعي أكثر انتشاراً في النساء من الرجال في المجتمع الغربي و تتعرض النساء أيضاً إلى عوامل خطر بيئية أكثر من الرجال. ومع ذلك، فقد أجريت دراسات قليلة جداً في الدول العربية في هذا المضمار. **وتهدف الدراسة:** إلى تقييم مدى انتشار الرهاب الاجتماعي بين مرضى العيادات الخارجية النفسية في مستشفى جامعة المنصورة، مصر. **الادوات والطرق:** تمت الدراسة على 3572 من المرضى المسجلين بالعيادات الخارجية النفسية واستوفى 52 مريض (24 من الذكور و 28 من الإناث) المحكات التشخيصية لمرض الرهاب الاجتماعي وقد تم أيضاً فحص الفروق بين الجنسين بالنسبة إلى معدلات الحضور، والخصائص الاجتماعية و الديمغرافية و الإضطرابات المصاحبة وشدة الرهاب الاجتماعي و العوامل السلبية المبكرة. وقد أبرزت النتائج وجود الرهاب الاجتماعي في 1.5% من العينة (0.7% عند الذكور، والإناث 0.8%) ولا يوجد اختلاف بين في أنماط الإعتلال في كلا الجنسين. **الاستنتاجات:** على الرغم من أن لدينا عينة غير ممثلة لسكان مصر كلها فإننا نستنتج أن معدل انتشار الرهاب الاجتماعي مماثل لدى الرجال والنساء وسجلت النساء معدلات أقل في الاساءه الجنسية على خلاف الدراسات الغربية السابقة وستنتج المزيد من الدراسات كشف التجارب الشخصية ونقاط الضعف في المجتمعات العربية مما يعد اضافة إلى المعرفة عن الفروق بين الجنسين في الرهاب الاجتماعي عبر الثقافات.

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Adherence in Egyptian patients with schizophrenia: the role of insight, Medication beliefs and spirituality

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الالتزام الدوائى في المرضى المصريين بالفصام : دور البصيرة، ومعتقدات الدواء و الروحانية
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Abstract

Objective: Reports about medication adherence in Arab patients with schizophrenia and the possible confounding factors are lacking. The aim of the present study was to determine whether insight, spirituality and patient beliefs about the necessity and concerns about medication were associated with adherence among those presenting with schizophrenia in an outpatient facility. **Methods:** At the end of a routine follow up with their psychiatrist, patients completed questionnaires, including the Schedule for the Assessment of Insight (SAI-E), Morisky Medication Adherence Scale (MMAS), Arabic Daily Spiritual Experience Scale (DSES) and Beliefs about Medicines Questionnaire (BMQ). **Results:** A sample of 92 patients with schizophrenia was studied. On the basis of the MMAS results, 24 (26%) patients were categorized as medication adherent and 68 (74%) as medication non-adherent. Logistic regression analysis showed that the SAI and DSES scores were positive predictors of adherence whereas the BMQ concern subscale score was a negative predictor of adherence. **Conclusions:** The present study extended prior research in western cultures on the role of insight, patient beliefs and spirituality in medication adherence in a sample of Arab patients with schizophrenia. Further examination of the influence of spirituality on adherence is required to explicate this relationship.

Key words: Schizophrenia, insight, medication beliefs, spirituality

Declaration of interest: None.

Introduction

Adherence to antipsychotic medication is a primary consideration in treating schizophrenia.¹ Poor adherence to psychiatric medications is associated with poor health outcomes, such as an increased risk of relapse, re-hospitalization, longer hospital admission, repeated emergency department visits, worsening of symptoms, and suicide attacks.^{2,3}

A number of demographic and clinical variables associated with poor medication adherence have been reported in previous studies, some of which are: negative attitude towards medications, poor insight, medication regimen complexity, poor therapeutic alliance, substance abuse and high scores on the Brief Psychiatric Rating Scale.⁴

served the idea that treatment by medication should During the past decade, the change in terminology from compliance to adherence has been a collaborative effort between physician and patient.⁵ From the perspective of shared decision making, the patient's insight (the awareness of self-acceptance of mental illness and the acceptance of need for treatment) and patient subjective satisfaction is crucial for medication adherence.^{6,7}

Recent research on the determinants of adherence in patients with schizophrenia has focused on the patients

beliefs and perceptions.⁸ This research has stemmed from the Medication Representation Model⁹ that defines medication adherence as problem-based coping behavior to prevent, treat or rehabilitate schizophrenia. In short, the model assumes that patients distinguish between beliefs about pharmacotherapy in general and beliefs about antipsychotic treatment. Medication adherence is thought to be subject to the patients concerns about their medication as well as their perceived necessity to take medication. The Beliefs about Medicines questionnaire (BMQ) has been developed to assess patients' medication beliefs about the necessity and concerns of the medication.¹⁰ The higher patients perceive the necessity of prescribed antipsychotic medication the more they adhere to it. Conversely, the more patients worry about their antipsychotic medication the less likely they are to adhere to it.¹¹

Previous studies demonstrated an association between religiosity and adherence to psychiatric treatment and medication. Specifically, religious patients were found to be just as or more compliant with their treatment as other patients.^{12,14} In addition, Borrás et al., 2007¹⁵ found that

patients who were more adherent to their medication were significantly associated with a religious affiliation and participated in more group religious practices than non-adherent patients.

However, most of these studies were carried in rich industrialized countries and it is not known how generalizable their findings are to settings where health resources are scarce and unequally distributed as seen in many developing countries.¹⁶

The aim of the present study was to clarify the relationship of drug adherence, antipsychotic medication, SAPS, SANS), medication beliefs spirituality and insight among those presenting with schizophrenia in an outpatient facility.

Specifically, we aimed to investigate whether these factors explained in western literature what predicts adherence in a developing country like Egypt. Demonstrating a relationship between drug adherence and these variables would suggest a new therapeutic route of improving interventions designed to increase adherence and improve quality of life and functioning for Arab patients with schizophrenia.

Hypotheses were:

1. Stronger beliefs about the necessity of antipsychotics for the treatment of schizophrenia as measured by the BMQ would be associated with higher rates of adherence. It was also hypothesized that stronger beliefs about the potential adverse effects (concerns) of taking their antipsychotics would be associated with lower rates of adherence.
2. More insight into the need for treatment will be associated with adherence.
3. More treatment adherence will be associated with higher spirituality.

Method

Study design and participants

The present study was a cross-sectional descriptive study conducted between July 2010 and September 2010 at the outpatient clinic of the department of Psychiatry, Mansoura University Hospital in Egypt. The hospital has 42 beds and renders services to patients from the East Delta region. The hospital outpatient clinics are run three days a week by consultant psychiatrists supported by resident doctors, psychologists and psychiatric nurses. Approval to perform the study was obtained from the hospital authority. Patients who met the following criteria were invited to participate: (1) Diagnosis of schizophrenia as defined by the DSM-IV-TR (American Psychiatric Association, 2000),¹⁷ (2) Age between 20 and 65 years,

(3) Patients with no major chronic physical illness, organic brain syndrome or history of substance abuse.

All patients had provided informed consent in advance of assessment and the study was approved by an institutional review board at the hospitals in the two countries. A convenience sample of 107 patients met the inclusion criteria, and 92 agreed to participate in the study.

Participants were administered the Scales for the Assessment of Positive and Negative Symptoms (SAPS and SANS)^{18,19} and then asked to complete two scales to assess medication adherence and spirituality in addition to a sociodemographic questionnaire. A research assistant was available to assist participants if there were difficulties reading or understanding the scale as the majority of the sample (70%) had below secondary education.

Assessment and measures

The instrument used in the present study consisted of five parts: Part 1 elicited sociodemographic data (age, marital status: married or unmarried; and, education: below secondary education, above secondary education; income: satisfactory, unsatisfactory; employment status: employed, unemployed; clinical: age of onset in years, type of schizophrenia: paranoid, non-paranoid and antipsychotic medication data (monotherapy/polytherapy) was defined as the occurrence of one (or more than one) ongoing antipsychotic medication prescription on the day of the visit²⁰ directly from patients and their medical files. Part 2 was a medication adherence test (MMAS). Part 3 was a schedule for the assessment of insight and Part 4 was an assessment of spirituality.

Patients' beliefs about their medicines

were assessed using the Arabic version of **Beliefs about Medicines Questionnaire (BMQ)**, which has been validated for use in the chronic illness groups studied.²¹ The BMQ comprises two five-item scales assessing patients' beliefs about the necessity of prescribed medication for controlling their illness and their concerns about the potential adverse consequences of taking it. Examples of items from the necessity scale include: "My health, at present, depends on my medicines" and "My medicines protect me from becoming worse." Examples of items from the concerns scale include: "I sometimes worry about the long term effects of my medicines" and "I sometimes worry about becoming too dependent on my medicines." The necessity-concerns differential (calculated as the difference between necessity and concerns scores) may be thought of as the result of a cost-benefit analysis for each patient in whom their

perceptions of cost (concerns) are weighed against their perception of benefit (necessity beliefs). If the difference is positive, the patient perceives that the benefits of medication outweigh the costs. Conversely, if it is negative the patient perceives greater cost than benefit.

Medication adherence

was assessed using the Arabic version of the validated 8-item **Morisky Medication Adherence Scale (MMAS)**.^{22,23} The Arabic version of the MMAS is an 8-item questionnaire with seven yes/no questions and one question answered on a 5-point Likert scale. According to the scoring system for the MMAS, 8 = high adherence, 6 to < 8 = medium adherence, and < 6 = low adherence. Patients who had a low or a moderate rate of adherence were considered non-adherent.

The Schedule for the Assessment of Insight (SAI-E) was used to examine the insight^{24,25} SAI-E

was developed by Kemp and David (1995) to assess insight as three separate dimensions: treatment compliance composed of items no. 1, 2,3,4,5 and 6 (rated 0 to 2), recognition of illness composed of items no. 7 and 8 (rated 0 to 4), and symptom relabeling, item no. 9 (rated 0 to 4). The total score is measured by the sum of three scored dimensions. The patient has no insight when the total score ranged from 0 to 12 grades, while the patient has full or good insight when the total score ranged from 13 to 24 grades.

The spirituality of respondents was measured by the Arabic Daily Spiritual Experience Scale.^{26,27} DSES is used to measure “a person’s perception of the transcendent” in daily life and his or her interaction with or involvement of the transcendent in life”. The English version of the scale consists of 16 items. The first 15 items are scored using a modified Likert scale where 6 represents ‘many times a day’ and 1 represents ‘never’ or ‘almost never’. The 16th item has four responses with a modified Likert scale where 4 represents ‘as close as possible’ and 1 represents ‘not close at all’. Scores are summed over items such that higher scores indicate higher level of spirituality. The possible range of the DSE is 16 to 94. The reliability and validity of DSES have been tested to be satisfactory.²⁶ In the present study, the

reliability of this version is also found to be high, and the Cronbach’s alpha index of the DSES was 0.84-0.93. Test-retest reliability as measured by Pearson correlation coefficient was 0.92, $p < 0.01$.

Data Analysis

Data were analyzed using SPSS (Statistical Package for Social Sciences) version 11. Descriptive statistics were presented as numbers, percentage, mean, SD, median, minimum, and maximum as appropriate. Unpaired student t-test was used for group comparison of numerical data. In categorical data, Chi-squared test and Fisher’s Exact test was used for comparison between groups. We conducted univariate analysis and stepwise multivariate analysis by using logistic regression. $p \leq 0.05$ was considered statistically significant.

Results

A. Sociodemographic and clinical characteristics

A convenience sample of 107 Muslim patients with schizophrenia met the inclusion criteria during the study period. Fifteen patients refused to participate and 92 patients agreed, yielding a response rate of 86%. Of the 92 patients, 67 (73%) were male and 25 (27%) were female.

Mean age was 38.6 ± 12.3 years and mean age of onset was 32.6 ± 6.2 . Most of the sample was cases of paranoid type schizophrenia (77%), had below secondary school (70%), unmarried (65%), unemployed (78%) and unsatisfactory income (82%). Twenty two (24%) and 27 (29%) patients were on monotherapy with typical and atypical antipsychotic medication respectively and 43 (47%) were on polytherapy.

B. Correlates of medication adherence

On the basis of the MMAS results, 42 (45.7%) patients had low adherence, 7 (28.3%) had medium adherence, and 24 (26.1%) had high adherence rates. Therefore, 74% of the patients were categorized as medication non-adherent. The average MBQ scores in the necessity, concern, and the necessity–concerns differential domains were 15.08 ± 4.68 , 16.12 ± 5.17 and 0.36 ± 0.48 , respectively

Table 1. Demographic and clinical characteristics

	Mean \pm SD	Median (min-max)	Number (%)
Age	32.55 \pm 6.247	31 (25-50)	
Gender			
Male			67(72.8)
Female			25(27.2)
Age of onset	23.63 \pm 3.473	24 (18-36)	
Education			
Below second. school			64 (69.6)
Above second. school			28 (30.4)
Employment			
Unemployed			72 (78.3)
Employed			20 (21.7)
Civil state			
Unmarried			60 (65.2)
Married			32 (34.8)
Income			
Unsatisfactory			75 (81.5)
Satisfactory			17 (18.5)
Type of schizophrenia			
Paranoid			71 (77.2)
Non-paranoid			21 (22.8)
Anti-psychotic type			
Typical			22 (23.9)
Atypical			27 (29.3)
Polytherapy			43 (46.7)
SANS	62.85 \pm 25.681	56 (30-113)	
SAPS	38.12 \pm 13.452	39 (17-70)	
SAI	10.3 \pm 5.3	9(2-24)	
MMAQ	5.29 \pm 2.347	6.00(0-8)	
Necessity	15.08 \pm 4.68	15.5(6-25)	
Concern	16.12 \pm 5.17	16(4-27)	
Differential	0.36 \pm 0.48	0(0-1)	
DSES	39.86 \pm 7.388	39 (29-60)	

Medication adherence was significantly higher among participants who were older and had higher education. There were no significant differences between medication adherent and non-adherent respondents (Table 2) with regard to other demographic variables (age of onset, gender, marital status, and level of income and employment status) and clinical variables (Table 3) such

As type of schizophrenia, type of medication, SANS and SAPS scores.

The SAI, BMQ differential, BMQ necessity and DSES scores were higher in the adherent group compared to the non- adherent group ($P=0.04$, 0.00 , 0.00 0.044 , respectively), conversely the BMQ concern subscale were higher in the non- adherent group compared to the adherent group ($P= 0.001$). (Table. 2)

Table 2. Relationship between medication adherence and sociodemographic variables

	Adherent (N=24)	No adherent (N=68)	Statistic X², FET	P-value
Age (years)	35.17±6.28	32.03±6.28	t = 2.1059	0.038
Gender			2.102	0.147
Male	5	20		
Female	19	48		
Age of onset	24.25±3.74	23.41±3.37	t = 1.0201	0.310
Education			25.03	0.000
Below second. school	7	57	31.75	
Above second. school	11	17	4.73	
Employment			0.02	0.9
Unemployed	19	53		
Employed	5	15		
Marital status			0.03	0.86
Unmarried	16	44		
Married	8	24		
Income			0.077	0.83
Unsatisfactory	21	54		
Satisfactory*	3	14		

* Satisfactory incomes means sufficient enough to satisfy living needs of the family, e.g., accommodation, food, transportation, clothes, costs of education for children and health care, without any debt.

Table 3. Relationship between medication adherence and clinical variables

	Adherent (N=24)	No adherent (N=68)	Statistic X², FET	P-value
Type of schizophrenia			0.059	0.809
Paranoid	17	54		
Non-paranoid	7	14		
Anti-psychotic type			5.622	0.06
Typical	8	14		
Atypical	8	19		
Polytherapy*	8	35		
SANS	56.67±22.19	65.03±26.61	t= 1.37	.17
SAPS	35.50±12.24	39.04±13.82	t= 1.11	.27
SAI	15.42±5.149	12.84±5.080	t= -2.13	0.036
Necessity	19.71±2.596	9.93±2.766	t -15.12	0.000
Concern	11.79±1.641	16.06±6.171	t= 3.33	0.001
Differential	8.00±3.148	-6.13±7.989	t= -8.41	0.000
DSES	40.78±7.167	37.25±7.531	t= 2.04	0.044

*Polytherapy was defined as the occurrence of one (or more than one) ongoing antipsychotic medication prescription on the day of the visit

Logistic regression analysis showed that the SAI and DSES scores were positive predictors of adherence whereas BMQ concern subscale score was a negative predictor of adherence. The most important predictor of adherence was DSES and SAI followed by BMQ concern subscales as subjects were 1.6 times more likely (OR=1.6, 95% CI 1.3-2.1, p=0.000) to continue their treatment for one point increase at the DSES score (i.e. higher level of

spirituality), 0.4 times more likely (OR=0.4, 95% CI 0.2-1), p=0.000) to have adequate medication adherence for a one point increase at the SAI score (i.e. higher level of insight), and 1.0 times (OR=1.0, 95% CI 0.8-1, p=0.05) more likely to have adequate medication adherence for one point decrease at the BMQ concern subscale score (i.e. lower level of concern).

Table 4. Multiple regression analysis for variables predicting adherence

Variable	B	S.E.	Wald	df	P	OR	95% CI	
AGE	-.054	.062	.756	1	.385	.947	.839	1.070
EDUCATN	1.449	.854	2.880	1	.090	4.260	.799	22.71
SANS	.008	.014	.280	1	.597	1.008	.980	1.036
SAI	1.041	0.237	12.240	1	.000	0.353	0.241	1.004
Necessity	.083	.086	.928	1	.335	1.086	.918	1.285
Concern	-.225	.067	4.477	1	.050	.982	.774	1.006
DSES	.490	.131	13.945	1	.000	1.632	1.262	2.110
Constant	-3.988	2.632	2.297	1	.130	.019		

Discussion

In our study, the majority (74%) of patients did not adhere to their antipsychotic regimens. Few studies in developing countries have used the Morisky questionnaire to assess adherence in patients with schizophrenia. A recent study in Palestine indicated that a total of 66% had a low or medium adherence rate.²⁸ similarly, a study in Nigeria reported that 40% of the patients were non-adherent.¹⁶ These results suggest that patients in our study had higher rates of non-adherence compared with patients in other studies carried out using the same methodology for assessment of adherence.

In our study, patients with higher daily spirituality, lower medication side effects and more insight had higher adherence rates.

To our knowledge this is the first study that has tested the effect of spirituality in medication adherence among mainly Muslim patients with schizophrenia employing the DSES which was originally developed by Underwood. DSES is a multi-item self-report measure designed to capture how religiousness/spirituality is expressed in everyday life (Underwood, 2006). Daily spiritual experience is defined as an individual's perceptions and emotions related to the transcendent in daily life.²⁹

Our findings were in agreement with previous studies that demonstrated an association between religion and adherence to psychiatric treatment and medication in patients with schizophrenia.^{30,31,14} Religion as a coping mechanism instilled hope, purpose, meaning in life, lessened psychotic and general symptoms, increased social integration, reduced substance use and risk of suicide attempts, and fostered adherence to psychiatric treatment.^{13,14}

In Arab and Muslim dominated countries, spirituality and religiosity shape the belief and practice towards chronic illnesses.²⁸ Religion is central to Arab self-concept and has been found to promote emotional health or strain in time of crisis or disease. According to Islam, both health and illness are caused by Allah.³² Devout Muslims must, therefore, accept their fate with strong faith, courage and great patience and, therefore, anger is an inappropriate response.³³ Moreover, it was found that Muslim patients with chronic illnesses not only employed more religious defense mechanisms than Western patients did in such a stressful situation, but also went a step further, considering the outcome of treatment, whether good or bad, to be the will of Allah thus greatly minimizing the anxiety provoked by thinking of the bad outcome of chronic diseases and mediating adherence.^{34,36}

However, our findings are preliminary. For example, Morh et al.'s (2010)³⁷ study found that patients with the presence of religious content in delusions appear to have poorer collaboration and are less likely to adhere to psychiatric treatment. Consequently, the religious nature of delusions may moderate this positive effect on treatment engagement and adherence. Moreover, Griffiths³⁸ who has suggested that a belief in the predetermination ('takdir' or destiny) of the Islamic life course can present a barrier to the uptake of interventions that aim to improve health behaviors. Further examination of the influence of religion on adherence is required to explicate this relationship. Finally, the definitions of spirituality and religiosity were in respect to Judeo-Christian beliefs. In fact, the separation between the two does not appear to be well established in the Islamic faith. Any proposed Islamic spirituality scale should address the five pillars of Islam, namely - belief in Allah, the angles,

the messengers, the books, the Day of Judgment and destiny, praying all of the five of the daily prayers in congregation every day, etc.³⁹

The findings from the present study suggested that medication beliefs of patients with schizophrenia are consistent with the medication beliefs of those with chronic physical and psychiatric illnesses.^{8,11,40} Specifically, adherence to medication was higher for those participants with lower concerns about taking the medication. These findings were also in agreement with previous studies that showed medication side effects have often been associated with non-adherence.^{41,42} In 1998, Fido and Hussein⁴³ led a study in Kuwait to explore the attitudes of psychotic patients towards medications. They reported that fear of drug dependence, complex treatment regimen and social stigma were the main reasons given by the patients for their non-compliance.

However, a consistent correlation between the presence or severity of these and the degree of adherence could not be found in a systematic review.⁴⁴ In addition, the side effects might not be the most important factor in determining adherence behaviour^{45,46} and may have less impact than the efficacy of medication⁴⁷ or expressed beliefs concerning susceptibility to relapse.⁴⁸

We found a significant positive relationship between insight and adherence to antipsychotic treatment. One of the most heavily researched risk factors of non-adherence is insight into illness. It is defined as the patients' adoption of the clinician's illness model⁴⁹ as poor insight is a common feature among patients with schizophrenia.⁸ However, a recent meta-analysis revealed that increasing awareness and knowledge about their illness and treatment alone failed to have any influence on medication adherence.⁵⁰ In addition, researchers raised doubts about the predictive power of insight for medication adherence because results of longitudinal studies were inconsistent.⁵⁰ Moreover, insight has been related to depression, hopelessness, lower self-esteem, and internalization of stigmatic beliefs.⁵¹ These results may partly explain the lower participation of insight in the prediction of adherence in our study and raises the question as to whether other variables may be better suited to enhance medication adherence and whether there are mediating variables between insight and adherence that should instead be targeted.⁸

Our study is one of the few to assess adherence among Arab patients with schizophrenia using validated tools; however, our study has a few limitations. First, the

relatively small sample size makes the detection of significant results less likely. Second, the present study was cross-sectional and, therefore, has limitations for establishing the prospective causal effects of spirituality on adherence. A prospective longitudinal study with a larger sample size is required to clarify the direction of relationship. Third, a research assistant was available to assist participants if there were difficulties reading or understanding the scale, which may have led to bias. Fourth, self-reported adherence might not match actual adherence and an objective adherence measure, e.g. plasma drug concentration, was lacking. Finally, the present study may not generalize to the general patient population since it is based on a convenience sample rather than an epidemiological cohort.

In conclusion, findings of the present study support the hypothesis that spirituality followed by concerns about taking medication and insight are important in determining adherence with antipsychotic treatment. Our findings support the importance of assessing cultural factors, such as religion and spirituality, patients' concern about potential adverse effects and insight to provide important indicators of adherence, and by implication, prognosis for therapy.

As religion often plays a role in the lives of individuals with schizophrenia, it is an element that may warrant inclusion into treatment plans. The degree to which religion plays a positive or negative role in one's life depends on the individual and his or her interpretation of illness; therefore, a comparative approach to religion in treatment is recommended to understand differences through comparisons of religious affiliations or group and investigating the elements or mechanisms across religions to commonly act as promoters or barriers to mental health engagement and adherence to treatment.

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المخلص

الاهداف: يفقد التراث الطبى العربى إلى التقارير المتعلقة بالالتزام الدوائى والعوامل المتداخلة المحتملة فى المرضى العرب الذين يعانون من الفصام وتهدف الدراسة إلى تقييم إذا ما كانت البصيرة، ومعتقدات المرضى حول ضرورة ومخاوف الدواء و الروحانية مرتبطة بالالتزام الدوائى فى مرضى عيادة خارجية مصابين بالفصام. **الطرق:** فى نهاية متابعة روتينية مع الطبيب النفسى يكمل المرضى الاستبيانات التى تشتمل على جدول تقييم البصيرة ومقياس مورسكى للالتزام الدوائى ومقياس الخبرة الإيمانية اليومية واستبيان المعتقدات حول العلاج. **النتائج:** تمت دراسة عينة من 92 مريضاً بالفصام . وقد بينت نتائج مقياس مورسكى للالتزام الدوائى أن هناك 24 (26%) من المرضى التزموا بالدواء وأن 68 (74%) لم يلتزموا بالدواء وأظهر الإنحدار اللوجستى أن درجات مقياس المخاوف الفرعى لإستبيان المعتقدات حول العلاج يعتبر منبئاً سلبياً للالتزام الدوائى بينما تعد درجات مقياس الخبرة الإيمانية اليومية وجدول تقييم البصيرة منبئان إيجابيان للالتزام الدوائى. **الاستنتاج:** تعد هذه الدراسة امتداداً للأبحاث فى الثقافات الغربية السابقة عن دور البصيرة، والمعتقدات والقيم الروحية فى الالتزام بالدواء فى عينة من المرضى العرب المصابين بالفصام و يتطلب المزيد من الدراسة حول تأثير الروحانية على الالتزام بالدواء.

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The relationship between burnout and job satisfaction among mental health workers in the psychiatric hospital, Bahrain

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العلاقة بين درجات الاحتراق النفسي ودرجات الرضا الوظيفي بين مقدمي الرعاية الصحية في مستشفى الطب النفسي في البحرين
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Abstract

Burnout syndrome affects many mental health workers, but does burnout relate to their satisfaction with their jobs? Our knowledge on the topics of burnout and job satisfaction emerges mainly from developed countries; very little research exists in the Arab world exploring these topics. Data for this research were sought from all mental health workers in the Psychiatric Hospital, Bahrain (N=261) using a census, cross-sectional design. Research instrumentation included Maslach Burnout Inventory, Job Satisfaction Survey and demographic sheet. Altogether 153 participants responded to the survey. Descriptive statistics showed that participants reported a prevalence of moderate levels of job satisfaction and moderate level of burnout. We correlated dimensions of burnout syndrome with job satisfaction scores and again with the nine individual job satisfaction dimensions. Pearson product-moment correlation coefficient revealed that there was no significant correlation between the three burnout components and job satisfaction scores. Results of structural equation modeling analyses provided further support to earlier finding that burnout and job satisfaction are two psychological conditions, and that job satisfaction is not predicted using burnout components.

Keywords: Burnout, job satisfaction, Bahrain

Declaration of interest: None.

Introduction

Psychiatric hospitals and facilities are stressful places to work in and studies have been done to find the effects of working in these institutions on the various mental health workers^{1,2,3}. The most commonly studied mental health professionals are the mental health social workers, psychiatrists, occupational therapists and nurses who deal with patients suffering with a varied amount of problematic behavior and attitudes^{4,5,6}.

Findings from previous studies have revealed that crisis intervention workers and professionals who deal with long-term psychiatric patients often face extreme occupational stress, high emotional burnout, low physical and psychological health, and low job satisfaction^{1,2,3}.

Prosser et al. (1996) have shown that burnout occurs in all settings of mental health work, be it in community or institution⁷. Mental health workers working in inpatient setting report higher burnout than those working in outpatient setting^{8,9,10}.

Garland and McCarty (2009) have shown that mental health workers have shown to experience moderate levels of job satisfaction as perceived effectiveness of working with clients increased¹¹. Increase in job satisfaction was mainly attributed to whether the worker finds their job interesting, has good relationships with

their managers and colleagues, high income, allowed to work independently and has clearly defined career advancement opportunities¹². Therapists were less satisfied with the increase in administrative responsibilities and a perceived lack of support from administrators. An individual may have high satisfaction with many facets of their job but still feel overall job dissatisfaction. Findings show that employees with low levels of job satisfaction are most likely to experience emotional burnout^{13,14}.

Ean (2007) accomplished a study to find the association between the individual/demographic factors of the medical social workers to the Human Service Job Satisfaction Questionnaire scores (HSJSQ scores), and it identified other important factors which influenced the medical social workers' job satisfaction and burnout levels¹⁵. Ean found the demographic variables of the medical social workers did not have significant associations with the HSJSQ scores. The individual/demographic factors were the main reasons for them being satisfied whereas the organizational factors were the main reasons for them suffering from burnout.

Published literature tell us that burnout and job satisfaction in mental health professions are interrelated with the professionals personal characteristics, the characteristics of their patients or clients, the

management and the work environment^{16,17}. Moore et al. (1992) suggested that high emotional exhaustion can exist without feelings of high stress and high job satisfaction¹⁸. Various studies have identified personal, interpersonal, and organizational factors related to job satisfaction, occupational stress, and burnout syndrome in health care and show that low job satisfaction can lead to burnout^{19,20,21,22,23,24,25}.

Our current understanding of the emotional burnout syndrome and job satisfaction of mental health workers is based on studies published in the West. There is a substantial pool of knowledge about the topic from North America and Europe, but the understanding of the relationship between burnout and job satisfaction in our culture is quite limited. English language research studies published since 1980 revealed no research on the relationship between burnout and job satisfaction for mental health workers in Arab countries; however, it does not mean the non-existence of such studies because many of the Arab journals are not available on the databases published on the internet.

From the literature search performed by researcher, many previous studies concluded there is a relationship between job satisfaction and burnout but no previous research was found that had been conducted in Bahrain or any other Arab country to study the relationship between job satisfaction and burnout among any mental health care professionals working in mental health. Therefore, the main purpose of the current research is to study the prevalence and level of burnout and job satisfaction in an Arabian mental health services. We also investigated the relationship between burnout and job satisfaction in the main public sector setting for mental health services in Bahrain.

Background about Bahrain

Bahrain is a small island situated near the western shores of the Arabian Gulf. It is an archipelago of 33 islands, the largest being Bahrain Island, the total area of the islands is about 760 square kilometers. Manama, the capital, is located on the northeastern tip of the island of Bahrain. The population in 2011 was about 1.25 million. Bahrain today has a high Human Development Index and the World Bank identified it as a high income economy.

Health indicators in Bahrain are considered to be among the best in the Middle East region by the World Health Organization. The entire population has health care, safe drinking water and adequate sanitary facilities.

Moreover, maternal and child health care services cover targeted populations, with immunization coverage reaching almost 100%. The Ministry of Health, a government ministry for the Kingdom of Bahrain, employs more than 7500 workers.

The Psychiatric Hospital was founded in 1932. The Psychiatric Hospital in Bahrain is the only mental health public sector service on the island. The hospital has gone through many improvements over the years. Today the hospital has modern 226 inpatient beds (with 85 beds for general adult psychiatric, 12 beds for children and adolescents, 26 beds for drug and alcohol rehabilitation, 31 beds for psycho-geriatric patients, 43 beds for patients with learning disabilities and 39 beds for long-term rehabilitation). There are about 1200 admissions per year and about 60,000 attendances every year to the outpatient department.

Method

Purpose of the Research

We have explored the relationship between emotional burnout components and job satisfaction scores among mental health workers in Bahrain. We have also explored the relationship between emotional burnout components and the different dimensions typically described under the construct 'job satisfaction'. By examining these issues, we hope to contribute to the body of knowledge about the relationship between emotional burnout and job satisfaction. Doing so has practical relevance for designing and implementing approaches and programs to minimize or eliminate burnout and increase job satisfaction.

Participants

The current research recruited all healthcare workers in the Psychiatric Hospital, Bahrain (N=261) at the time of the research in a cross-sectional survey design. The participants consisted of 52 psychiatrists of different grades including consultants and residents, 183 psychiatric nurses, six social workers, four clinical psychologists, 14 occupational therapists and two physiotherapists. The current research excluded the managerial administrators and support services staff as the focus was on health care workers or those individuals who engage in providing direct care to patients.

Measures

Maslach Burnout Inventory and the Job Satisfaction Survey were used in this research as data collection tools. Participants also completed a basic demographic

questionnaire including: (a) age, (b) gender, (c) marital status, (d) years or service, (f) job title. We chose these characteristics based upon a review of related literature.

The Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI), which is the most used burnout outcome measure, was employed in the present study²⁶. The MBI is designed to assess the three components of the burnout syndrome: emotional exhaustion, depersonalization and reduced personal accomplishment. Emotional exhaustion is the lack of energy and the consumption of a person's emotions. Depersonalization is insensitivity and cynicism toward co-workers, patients, and the organization. Personal accomplishment is a tendency to assess self-achievement²⁶.

There are 22 items in the MBI, which are divided into three subscales. The general term 'recipients' is used in the items referring to particular people for whom the respondent provides service, care or treatment. The items are written in the form of statements about perceptions or attitudes, such as 'I feel emotionally drained from my work', 'I have accomplished many worthwhile things in my job' and 'I worry my job is hardening me emotionally'. Statements are answered in terms of the frequency with which the respondent experiences these feeling, on a 7-point fully anchored scale (ranging 0, 'never', to 6 'every day'). The MBI takes about 10 to 15 minutes to complete as a self-administered tool. Previous research has indicated that MBI has high psychometric properties, providing assurance that the data would be valid and reliable.

Job Satisfaction Survey

Spector's (1997) Job satisfaction Survey (JSS) was used to measure job satisfaction²⁷. The JSS is a 36 item, nine facet scale designed to assess employees' attitudes about their job and aspects of the job. Each facet is assessed using four items, and a total score is computed from the sum of all items. Although the JSS was originally developed for use in human service organizations, it is applicable to all organizations. According to the developer of JSS, 36 to 108 indicate dissatisfaction, 144 to 216 is satisfaction and scores from 108 to 144 is ambivalent. For the four items facet scores of 4 to 12 are dissatisfied, 16 to 24 are satisfied and between 12 and 16 are so-called indifferent or ambivalent. Previous research has indicated that the JSS has high psychometric properties, for example, providing assurance that the data would be valid and reliable. Spector reported coefficient

alphas ranging from 0.60 for the coworker facet to 0.91 for the overall measure.

Procedure

Participants received the two instruments along with a demographic sheet, a cover letter, and a return envelope. Follow-up postcard was circulated 10 days after the initial mailing to everyone to enhance that all responses were kept confidential and anonymous. The study was approved by research committees in the hospital and the Ministry of Health. Informed consent was obtained from the participants indirectly because in the cover letter it was stated clearly that participation was voluntary and by returning the questionnaires the participant agreed to participate in the research.

Data analysis

The Predictive Analytic Software SPSS Version 18.0 for Windows and the AMOS Version 18.0 were used; the researchers performed several quantitative analyses.

After analyzing the demographics using basic descriptive statistics, each instrument was scored according to the directions in its respective user's manual. Then, the relationship between the emotional burnout components and job satisfactions was investigated by calculation of Pearson's product-moment correlation coefficient. Repeat correlation was performed between the emotional burnout components and nine dimensions of the job satisfaction survey.

In order to further study the direct and indirect relationships between the emotional burnout components and job satisfactions, we performed structural equation modeling analysis using the AMOS software package²⁸. The fit of the model to the data was examined with the adjusted-goodness-of-fit index (AGFI) and the root mean square error of approximation (RMSEA). Further, the non-normed fit index (NNFI), the comparative fit index (CFI), and the incremental fit index (IFI) are utilized. In general, models with fit indices >.90 and a RMSEA <.08 indicate a close fit between the model and the data²⁸.

Results

Altogether 153 participants completed the survey, a response rate of 59%. Results showed that a high percentage of mental health workers were 26 to 37 years old. There were 73 males (48%) and 80 (52%) females; the majority of females were nurses. Bahraini nationals were 90 (59%). The non-Bahraini mental health workers were mainly nurses from India and Philippines. One

hundred twenty (78.4%) were nurses, 14 (9.2%) were physicians and 19 (12.4%) were other healthcare professionals, which include occupational and physiotherapists, social workers and clinical psychologists.

Cross-correlation procedure was performed on the data for each data collection tool to check validity and results indicated high significant correlation between items. Procedure Cronbach's alpha was performed to measure internal consistency. Cronbach's coefficient is commonly used as an estimate of the reliability of a psychometric test for a sample of examinees. All alphas were ≥ 0.85 indicating excellent internal consistency.

Descriptive statistics using means and standard

deviations were calculated for each of the: (a) emotional burnout components and (b) the nine job satisfaction facets presented in the JSS. Frequencies and percentages were calculated for the MBI burnout components according to the grouping of low, moderate and high burnout. Table 1 presents the descriptive statistics and distribution of Maslach Burnout Inventory scores for the entire sample.

The MBI mean scores for the respondents as a whole unit of analysis were 18.96 (SD 13.81) for emotional exhaustion, 6.69 (SD 5.26) for depersonalization and 34.28 (SD 8.05) for personal accomplishment. The overall interpretation for the participants is a moderate-low level of burnout.

Table 1. Descriptive Statistics and Distribution of Maslach Burnout Inventory Scores (n=153)

Subscales	Mean Scores (SD)	95% C.I.		Burnout Subscales		
				Low	Moderate	High
		L.B.	U.B.	N (%)	N (%)	N (%)
Emotional exhaustion	18.96 (13.81)	1.62	1.88	74(48.4)	42(27.5)	37(24.2)
Depersonalization	6.69 (5.26)	1.41	1.66	99 (64.7)	26 (17.0)	28 (18.3)
Personal achievement	34.28 (8.05)	1.86	2.10	43 (28.1)	69 (45.1)	41 (26.8)

Procedure frequency count and percentages were also calculated for job satisfaction according to the grouping of satisfied, ambivalent, and dissatisfied. Table 2 presents the descriptive statistics distribution of job satisfaction survey scores for the entire sample. The JSS

mean scores for the respondents as a whole unit of analysis (n=153) were 130 (SD 22.6, Range 69-189). The overall interpretation for the participants is an ambivalent level of job satisfaction or simply being moderately satisfied 91 approximately (60%) as shown in Table 2.

Table 2. Descriptive Statistics Distribution of Job Satisfaction Survey Scores (n=153)

Job Satisfaction Dimensions JSS	Mean Scores (SD)	95% C.I.		Job Satisfaction Scales		
				Dissatisfied	Ambivalent	Satisfied
		L.B.	L.B.	N (%)	N (%)	N (%)
Pay	13.5 (4.3)	1.90	2.59	60 (39.2)	39 (25.5)	54 (35.5)
Promotion	13.1 (3.9)	1.76	2.21	59(38.6)	55(35.9)	39(25.5)
Supervision	18.7 (4.6)	2.55	2.76	15 (9.8)	22 (14.4)	116 (75.8)
Benefits	12.6 (4.4)	1.68	2.26	71 (46.4)	46 (30)	36 (23.6)
Rewards	12.9 (4.4)	1.66	1.92	70 (45.8)	44 (28.8)	39 (25.5)
Operating conditions	13.7 (4.1)	1.79	2.35	61 (39.9)	44 (28.8)	48 (32.5)
Co-workers	17.7 (3.4)	2.56	2.75	10 (6.5)	32 (20.9)	111 (72.5)
Nature of work	19.3 (3.3)	2.77	2.91	5 (3.3)	14 (9.2)	134 (87.6)
Communication	16.6 (4.8)	2.27	2.69	33 (21.6)	25 (16.3)	94 (61.4)
Total Satisfaction	130 (22.6)	126.36	133.59	22 (14.4)	91 (59.5)	40 (26.2)

When correlation between the three burnout components and job satisfaction scores were examined, all three burnout syndrome dimensions were not significantly correlated with job satisfaction as a factor. When a detailed correlation between the three burnout components and the nine job satisfaction dimensions were computed, one single relationship appeared to be

significant that is benefits-depersonalization with an approximate coefficient of 0.2 at the 0.05 probability level. Results of the Pearson product-moment correlation coefficient between the three Emotional Burnout Components and Job Satisfaction Scores are presented in Table 3.

Table 3. Pearson Correlations between Emotional Burnout Components and Job Satisfaction Scores (n=153)

Job Satisfaction Dimensions (JSS)		Maslach Burnout Inventory (MBI)		
		Emotional Exhaustion (EE)	Depersonalization (DP)	Personal Accomplishment (PA)
Pay	<i>r</i>	0.04	0.02	0.02
	Sig.	0.66	0.82	0.77
Promotion	<i>r</i>	-0.09	-0.06	0.14
	Sig.	0.27	0.46	0.09
Supervision	<i>r</i>	0.05	0.04	-0.03
	Sig.	0.54	0.62	0.75
Benefits	<i>r</i>	0.12	0.18	0.01
	Sig.	0.13	0.02*	0.94
Rewards	<i>r</i>	0.08	0.09	0.04
	Sig.	0.36	0.27	0.65
Operating Conditions	<i>r</i>	0.03	0.10	-0.08
	Sig.	0.69	0.22	0.30
Coworkers	<i>r</i>	0.10	0.11	0.02
	Sig.	0.22	0.20	0.77
Nature of Work	<i>r</i>	0.02	0.04	-0.04
	Sig.	0.77	0.65	0.61
Communication	<i>r</i>	0.13	0.14	-0.07
	Sig.	0.10	0.09	0.43
Total Satisfaction	<i>r</i>	0.07	0.08	0.01
	Sig.	0.37	0.35	0.94

* Correlation is significant at the 0.05 level (2-tailed).

r Pearson product-moment correlation coefficient

The lack of significant correlation between the three burnout components and job satisfaction scores moved the researchers to use structural equation modeling to investigate the potential direct and indirect relationships and also to account for measurement error which is not addressed using standard correlation and regression procedures. As with any structural equation model; it may include two types of constructs exogenous and endogenous. These two types of constructs are distinguished on the basis of whether or not they are dependent variables in any equation in the system represented by the model. Initially, job satisfaction was

treated as endogenous variable in the model. The three dimensions of burnout, i.e., “emotional exhaustion”, “depersonalization” and “personal accomplishment” were treated as exogenous variables. Several runs; adjustments in relationships; were attempted including the assumption that 'personal accomplishment' can be a mediating factor between emotional exhaustion and depersonalization as exogenous and job satisfaction as endogenous. The results were as expected within a non-fit indices and insignificant relationships. Table 4 presents the regression weights for the SEM between the three burnout components with job satisfactions.

Table 4. Regression Weights for the SEM (n=153)

			Estimate	S.E.	C.R.	P
Job Satisfaction	<---	Emotional Exhaustion	.104	.068	1.537	.124
Job Satisfaction	<---	Depersonalization	.084	.071	1.185	.236
Job Satisfaction	<---	Personal Accomplishment	-.060	.067	-.897	.370

Discussion

Our results showed that mental health workers in Bahrain reported a moderate degree of burnout and moderate degree of job satisfaction. The results slightly differ from reports from other countries, which have mainly demonstrated a high degree of emotional

exhaustion and low personal accomplishment and a lower degree of depersonalization among mental health workers^{29,30,31}.

Our findings are generally equivalent with Onyett et al. (1997) who found high levels of emotional exhaustion in members of several professionals within the community

mental health teams again accompanied by high levels of job satisfaction and personal accomplishment³⁰.

Moore et al. (1992) and Oliver and Kuipers (1996) expected no significant association between emotional exhaustion, well-being, and job satisfaction^{18, 32}. Moore et al. (1992) suggested that high emotional exhaustion can exist without feelings of burnout and high job satisfaction: This may be due to methodological problems like maintaining distance from the patients, low contact and frequency, absence of blood ties, high professional training, lower emotional burden, and negative professional relationship on the working circumstances¹⁸.

We would like to reflect on our findings using their personal experience by asserting that while it may sound at first a counter intuitive finding "the lack of significant correlation between the three burnout components and job satisfaction". It seems that consequences of both psychological experiences are somewhat different. The authors speculate that the classical consequence of a person with low job satisfaction is to leave the job and seek a better one. The classical consequence of a person with burnout syndrome is to leave the profession and seek a different career.

In support of our reflection, Maslach (1996) suggested personal accomplishment is less likely or closely related to emotional exhaustion in structural models²⁶. A sense of achievement operates as distinct from emotional exhaustion and serves as a protective factor. Our research found that covariance between 'personal accomplishment' minimal with 'emotional exhaustion'. Carson et al. (1995) found high levels of emotional exhaustion among community psychiatric nurses, together with moderate levels of depersonalization and high levels of personal accomplishment, and with higher levels of job satisfaction³³.

Furthermore, Prosser et al. (1996) suggests that overall mental health workers had relatively high scores for emotional exhaustion and poor psychological well-being, but were relatively highly satisfied with their works⁷. Reid et al. (1999) raises the question as to why levels of emotional exhaustion and psychological ill health are generally high among mental health workers despite having high job satisfaction³⁴, which is mainly our aim, or the concern of our research topic. Prosser et al. (1996) stated that burnout can be offset by the benefits of experience and adaptation at both an individual and organizational level⁷. In his report, 1994 data showed

lower job satisfaction but 1995 data reports relatively higher job satisfaction.

When the relationship between burnout and job satisfaction was addressed, the majority of previous studies concluded that job dissatisfaction is one of the most significant factors contributing to the burnout syndrome. Negative correlation between job satisfaction, emotional exhaustion, and depersonalization, and the positive correlation between job satisfaction and low personal accomplishment have already been reported in some previous studies^{35,25,36}. Gigantesco et al. (2003) further has shown that job satisfaction is in close relation with both psychological and physical health³⁷. This correlation is particularly significant for the aspects of mental health such as burnout syndrome, lower self-esteem, anxiety, and depression, and supports the claim that job dissatisfaction may be particularly damaging to the health and welfare of the worker.

Nevertheless, previous studies are not all in agreement, e.g. research by Palestinian researchers found that health workers exhibited a moderate degree of burnout syndrome, but there were no significant differences regarding their occupation. It seemed that moderate burnout did not negatively affect the level of job satisfaction among Palestinian nurses working in private hospitals³⁸. The present study, however, was not among mental health workers and not within public services sector making comparison difficult.

The results of our study do not match many of previous findings; our participants showed that there is no significant correlation between job satisfaction and burnout components. Furthermore, job dissatisfaction at particular job aspects did not also show any significant finding when the nine dimensions of the JSS were correlated with the MBI components. These findings are very important to be taken into consideration when designing preventive programs at individual or organizational levels for reducing burnout and increasing job satisfaction.

Our study has some limitations. The main limitation refers to size and cross-sectional survey design, which limits generalizations of our results. Cross-sectional research prevented us from observing the relationship between variables of interest over time. The small sample size, the mediocre response rate and the absence of multiple sites are another important point. The design was limited to participants working in a single hospital; therefore, the results cannot be regarded yet as generalizable to any population of mental health workers

beyond those in the study. The researchers cannot suggest any conclusions about characteristics of non-responders. In Bahrain, English is one of the main business and service languages, nevertheless; the use of English-language research tools in an Arabic speaking country may raise the issue of language and interpretation.

Future research in the topic should include longitudinal studies that would enable the inquiry into the long-term interrelationships of job satisfaction and burnout syndrome to be clearer. Ironically, the mental health field has paid relatively little attention to the health and well-being of its own workers. Taking our key results it may be useful in creating intervention strategies, which should improve and preserve the health of mental health workers at the personal level and enhance their job satisfaction at the organizational level. Finally, in today's competitive world we would also suggest to study the relationships between a) burnout and job performance b) job satisfaction and job performance.

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ملخص

أجريت هذه الدراسة لتحديد مستوى متلازمة الإحترق النفسي بين مقدمي الرعاية الصحية في مستشفى الطب النفسي، وزارة الصحة، مملكة البحرين. كذلك تمت دراسة علاقة مستوى الإحترق النفسي بالرضا الوظيفي. وتم إجراء البحث باستخدام منهجية الاستبيانات، باستخدام مقياس ماسلاش واستبيان الرضا الوظيفي كأدوات بحثية لجمع المعلومات. تم توزيع الاستبيانات على جميع الإحصائيين العاملين (أطباء، ممرضين، باحثين اجتماعيين، أخصائيي تأهيل، أخصائيين نفسيين) في المستشفى والبالغ عددهم 261 أخصائي، استجاب 153 أخصائي فقط مما يعادل 59%، وأظهرت النتائج الإحصائية الوصفية أن العينة تتسم برضا وظيفي "متوسط" بشكل عام، وبمعدل إحترق نفسي "متوسط" في الوقت ذاته. كشفت نتائج معامل بيرسون أنه لا يوجد ارتباط دال بين العوامل الثلاثة للإحترق النفسي وعوامل الرضا الوظيفي. عند استخدام نمذجة المعادلات الهيكلية تبين أنه لا يمكن التنبؤ بدرجات الرضا الوظيفي بناءً على درجات الإحترق النفسي. نستنتج من هذا البحث بأن مفهوم "الإحترق النفسي" و "الرضا الوظيفي" هما مفهومان لظاهرتين منفصلتين على أرض الواقع بخلاف ما هو متوقع .

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Dementia: A review from the Arab region

Georges Karam, Lynn Itani

الخرف: ملخص من العالم العربي

جورج كرم ، لين عيتاني

Abstract

Objective: To conduct a review of studies about dementia in the Arab region up to 2012. **Methods:** Specific keywords were used in the search for studies, including: dementia, Alzheimer, Pick, memory impairments, pseudo-dementia, executive function, amnesic disorder, and amnesia. All results were screened and categorized. Epidemiological data on prevalence, age of onset, gender, other socio-demographic factors, co-morbidities, genetic risk factors and treatment patterns was collected from these studies. **Results:** Most studies on dementia in the Arab world focus on clinical samples. Studies have shown that dementia is associated with increasing age, and lower levels of education with differing results for gender. Also, genetic studies on dementia focus on Apolipoprotein allele ApoE E4 as a risk factor for the disease. Additionally, investigations included malnutrition, depression, as well as cardiovascular diseases. Treatment of the disease is often delayed, as symptoms are confused for being part of the ageing process. **Conclusion:** There is a need for nationally representative studies on dementia in the Arab world. Also, public education at the clinical and population levels is needed for earlier detection and treatment of this disorder.

Keywords: Dementia, Alzheimer's disease, geriatric psychiatry, Arab region.

Declaration of interest: The authors declare no conflict of interest.

Introduction

Dementia is a brain disorder marked by a decline in reasoning, memory, and other mental abilities. Diagnostic features include: memory impairment and at least one of the following: aphasia, apraxia, agnosia, and disturbances in executive functioning. In addition, the cognitive impairments must be severe enough to cause impairment in social and occupational functioning.¹

Alzheimer's disease (AD) is a progressive, neurodegenerative disorder that is the leading cause of dementia in the elderly (60% of all dementia cases) and affects 13% of people over the age of 65 years and approximately half of individuals over 85 years of age.^{2,3}

The second most common subtype of dementia is Vascular Dementia (VaD). Other subtypes also include mixed dementia, dementia with Lewy body, Parkinsons and fronto-temporal dementia (FTLD). In developed countries, an ageing population has rendered dementia a significant public health issue. In some developing countries, an increase in the prevalence of dementia is predicted to accompany the rise in life-expectancy.⁴

The increased interest in mental health research is not only related to clinical methods but also to local studies. The Institute for Development Research Advocacy and Applied Care's (IDRAAC) goal to increase awareness about the importance of mental health research in the Arab region has prompted this institute to conduct this review. Other reviews on mental health have been published on anxiety disorders, suicide and schizophrenia.^{5,6,7,8}

Moreover, the review is important to evaluate the needs of the elderly population, and to guide necessary interventions. In the Arab world, very few studies about

dementia were found in the literature and are reported in the current review article.

Objectives

The purpose of the current review is to combine and report on major significant studies on dementia found in the Arab world. It is not our intention to discuss or interpret the findings of these studies.

Methods

IDRAAC has conducted an extensive review of mental health publications related to dementia in the literature up to the year 2012. The review included articles about the various types of dementia: Alzheimer's disease, vascular dementia, Parkinson's dementia, fronto-temporal dementia, mixed dementia, Pick's dementia etc. The search included Arab countries, and was restricted to publications in the English language.

Keywords:

Specific keywords were used during the search: (Algeria, Bahrain, Egypt, Gaza, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, UAE, Yemen, Arab Gulf, Middle East, Djibouti, Mauritania) AND (Dementia, Alzheimer, Pick, Memory impairments, Pseudodementia, Executive Function, Amnesic Disorder, Amnesia, e4 Allele, tau, Degeneration, Ameloid, a beta 42) AND (Geriatric, Elderly, Senile)

Search Engines:

The search engines used were: PubMed and PsychInfo.

Arab countries and Regions:

The countries included were: Algeria, Bahrain, Egypt, Gaza, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen.

Screening Search Results and Categorization:

The search resulted in 1343 hits of articles, and 850 were selected for further review for being probably relevant. Then, the references were marked according to their examination of the following aspects of dementia: prevalence, socio-demographic factors (gender, age, education, or income), genetic risk factors, co-morbidity with other diseases, and patterns of treatment and seeking care. Finally, a total of 22 relevant articles were included in the current review.

Dementia in population and clinical samples

The prevalence rates of dementia (as well as its subtypes) are influenced by the instruments used the diagnostic system, the sampling methodology, as well as cultural factors.^{9,10,11} European population studies have reported an age-standardized dementia prevalence of 6.4%; 4.4% related to Alzheimer's and 1.6% to vascular dementia. Other countries such as Nigeria, China and Taiwan have reported a prevalence of 3.5% while India has reported a lower prevalence of 1.36%.^{9, 10, 11}

A summary of published studies on dementia in community and clinical samples in the Arab countries is provided in Table 1.

In Egypt, Tallawy¹² studied neurological disorders in Al Kharga district, Egypt on 62,583 individuals (13, 915 families) via door-to-door surveys conducted by three neurologists and 15 social workers. All eligible inhabitants who had been living in Al Kharga district for at least six months before the time of the study were included in the survey. The age-specific lifetime prevalence rate of dementia was reported as the highest of all neurological disorders; with a rate of 22.6/1,000 inhabitants aged greater than 50 years. As expected, the rate of dementia reported in this community sample was lower than the rate in clinical samples described below.

In Lebanon, Chahine¹³ examined dementia among three nursing homes in Lebanon while using the instruments: the Mini-Mental Status Examination (MMSE) as well as the Geriatric Depression Scale (GDS). A diagnosis of dementia was given for patients with an MMSE score less than 25. Mild dementia was for patients scoring 20-24, moderate for those scoring 14-19, and severe for less than 14. When a patient's cognitive impairment was too severe to administer the MMSE and GDS, a diagnosis of severe dementia was made based on records. The sample consisted of 102 nursing home residents who were above the age of 50; 59.8% of whom had dementia of some type. Among these patients, 27.9% had mild dementia, 22.9% had moderate, while 49.2% had severe forms.

In Oman, Shelley⁴ reviewed the records of 116 patients diagnosed for probable dementia and admitted between 2000 and 2005 to the national tertiary referral hospital from different health centers. The diagnosis of dementia was made according to the DSM-IV criteria, and staged according to the Clinical Dementia Rating Scale. The hospital frequency of dementia was 59/100,000. The reported division of cases among dementia subtypes showed admission of 52.6% for Alzheimer's, 24.1% for VaD, and 9.5% for FTLTD. The study showed that 8.6 % of those with dementia, a relatively high proportion, were attributed to potentially reversible causes such as vitamin-B12 deficiency, NPH, hypothyroidism, HIV, and neurosyphilis.

In Qatar, Ghuloum¹⁴ conducted a study for the purpose of determining the prevalence of mental disorders among 1660 primary healthcare patients aged 18 to 65 years. The research tool used was a screening questionnaire detecting symptoms of mental disorders based on the DSM-IV diagnostic criteria. The point prevalence of dementia in this sample was reported to be 1.1 %.

In Saudi Arabia, a hospital-based study conducted by Ogunniyi¹⁵ studied 77 patients within the 50-98 years age group diagnosed with dementia at the King Khalid University Hospital in Riyadh, and admitted between January 1985 and December 1996. Cases were identified according to the DSM-IV and the International Classification of Diseases and Related Health Problems (ICD-10) criteria. The subtypes were determined according to the National Institute of Neurological and Communicative Diseases and Stroke/Alzheimer's Disease and Related Disorders Association (NINCDS-ADRDA), National Institute of Neurological Disorders and Stroke and Association Internationale pour la Recherche et l'Enseignement en Neurosciences (NINDS-AIREN), and ICD-10 criteria. A total of 77 patients fulfilled the criteria for dementia out of 400,000 patients seen in the hospital during that period. Hence, the average number of cases reported was six per year. With respect to the different subtypes, out of those 77 cases, 51.9% were classified as AD, 18.2% with VaD and 15.6% with mixed dementia (AD and VaD), 7.8% had Dementia with Parkinson's, 6.5 % had other types. The fact that AD was the most common type coincides with findings from Western studies. Moreover, clinical staging of dementia by the Clinical Dementia Rating (CDR) classified cases (based on severity of cognitive deficit and the extent of functional dependence) as follows: mild (n=43, 55.8%), moderate (n=31, 40.2%) and severe (n=3, 3.4%).

In the United Arab Emirates (UAE), Margolis¹⁶ studied nursing home patients who were 60 years or older, and who were "admitted to a hospital or a long-term institutionalized setting for at least six weeks and with no evidence of an expectation of discharge at the time of evaluation". With the purpose of assessing the

clinical, functional, nutritional and cognitive status of patients, the study analyzed the clinical information and records of 47 patients. Results showed that 89% of the patients had dementia. Moreover, the rate of institutionalization in UAE was estimated as 7.0 to 14.0 per 1,000 people above the age of 65.

Socio-demographic factors

Age

Elwan¹⁷ studying brain ageing in 94 normal Egyptian subjects found that those aged 60 and above score significantly lower on “intentional and incidental memory, trail making (TM), and Digital Symbol Substitution (DSST) tests indicating impairment of memory, psychomotor performance and perception in elderly subjects”. In Lebanon, Chahine¹³ found that dementia was more common among the residents of a nursing home who were above the age of 80. However, there was no significant difference in the prevalence when comparing the age groups: 50-65, 66-80 and greater than 81 ($p=0.808$), possibly due to small sample size. In Egypt, Tallawy et al. (2010) found an increasing prevalence with age as: 2.26% for those above 50; 4.45% those above 60; 9.28% for above 70 and 18.48% for above 80 years¹².

Gender

Elwan¹⁷, studying brain ageing, found that Egyptian female subjects had significantly better scores than males in memory and perception according to the Digit Symbol Substitution Test (DSST). Studies reported different results related to gender. Ghuloum¹⁴ found that the prevalence of dementia was significantly higher in women than in men ($p=0.02$). Chahine¹³, in Lebanon, found no significant difference between men and women in a nursing home sample with respect to the prevalence of dementia ($p=0.1$).

Education and Other Socio-demographic Factors

With respect to education, different results have been reported. However, in Lebanon, Chahine¹³ showed that education was not significantly associated with having dementia as defined by MMSE scores among elderly in a nursing home in Lebanon ($p=0.336$). The education levels were divided, very unusually into the following three groups: four years or less, more than four years, and no education. Smach¹⁸ found that patients with fewer years of education appeared to have higher rates of Alzheimer's disease while adjusting for age ($OR=2.76$, $p=0.004$). In Egypt, Khater¹⁹ found that elderly who were residing in an elderly home and had a higher education level also had significantly higher scores on MMSE ($P<0.001$) with education level defined as: illiterate, can read and write, having a school education, as well as having a university education.

Other socio-demographic factors included: marital status and income-both studied by Chahine¹³ and both were not significantly associated with dementia.

Genetic risk factors

In Tunisia, Smach²⁰ studied the Apolipoprotein E gene's allele frequency of AD patients and controls. The alleles for Apolipoprotein E are E2, E3 and E4. The ApoE gene allele ApoE E4 frequency was significantly higher in AD patients compared to the control (29.5% vs. 9.5%; $p<0.001$). The odds ratio for AD according to genotype was 3.29 ($p=0.001$) for heterozygous subjects and 9.47 ($p<0.001$) for homozygous ones. Similarly, Rassas et al. found from a case-control study that the association (odds ratio) for the APOE E4 and AD is 5.4 (1.4-21.5) for the homozygous genotype and 2.9 (1.3-6.6) for the heterozygous genotype²¹. In accordance with studies on ethnic groups in France, Italy, Iran and Spain, the study demonstrated that the ApoE E4 allele increased the risk for AD in a dose-dependent manner^{22,23,24}.

Another study in Tunisia compared Parkinson's patients who were LRRK2 (leucine-rich kinase 2) G2019S mutation allele carriers *versus* non-carriers in relation to cognition (using the MMSE, Montreal Cognitive Assessment-MOCA, Frontal Assessment Battery-FAB). Other tests included the GDS, the Hoehn and Yahr stage scale (assesses the stage of Parkinson's), the Schwab and England scale, and the Movement Disorder Society-Unified Parkinson's disease rating scale (MDS-UPDRS). Results showed no significant differences between the G2019S carriers and non-carriers-except that non-carriers have a greater proportion of GDS scores >20 ($p=0.04$)²⁵.

Also in Tunisia, another case-control study by Smach¹⁸ intended to study the effect of genetic polymorphism in the promoter region for vascular endothelial growth factor (VEGF) on the development of AD as diagnosed according to the Neurological and Communicative Disorders and Stroke Alzheimer's Disease and Related Disorders. The study included 93 AD patients and 113 non-AD patients; patients and controls were matched according to sex and age. The two alleles of the VEGF promoter studied included -2578C/A and -1154G/A; yet, their frequencies did not differ significantly between AD groups and non-AD groups ($p>0.05$). However, taking only the subsample of AD patients with the ApoE E4 allele and comparing them to controls, significant differences were seen for the -2578C/A allele frequency ($p=0.039$). Adjusting for age, gender, and Apo E4 status, the A/A genotype for the -2578C/A distribution was higher in AD patients with the Apo E4 allele relative to controls, elevating the risk by 1.7 times for AD compared with the C/C genotype ($p=0.041$). The authors recommended analyzing additional polymorphisms in other regions of the VEGF gene.

In Egypt, Elwan¹⁷ investigated the effect of the ApoE E4 allele on attention (using the Paced Auditory Serial Addition Test), on sensory memory (intentional memory test), on short term memory (incidental memory test), on perception (the Digit Symbol Substitution test), on psychomotor performance (Trail Making Test A and B),

and personality traits (using the Eysenck Personality Tests) in normal ageing Egyptians. It was shown that subjects with the Apo-E4 genotype did significantly worse in scores of sensory memory when compared with non-ApoE4 subjects ($p < 0.05$). No significant difference was found with respect to Apo E4 status for other tests/measures. This supports the hypothesis that the E4 allele is a good predictor for younger individuals who will eventually develop AD.

Co-morbidities

Khater¹⁹ looked into the association between nutritional status and mild cognitive impairment (MCI), a transitional stage between normal cognitive ageing and dementia in 120 institutionalized elderly Egyptian subjects. The hypothesis was that individuals with MCI are at a higher risk of malnutrition. In fact, the study found that subjects at the risk of malnutrition and those who were malnourished had significantly poorer performance on MMSE ($p < 0.001$) as compared to those who were well-nourished. However, the causal direction of the relationship between malnutrition and MCI remains vague.

In Lebanon, Chahine¹³ showed that 41% of elderly with dementia in a nursing home had some degree of depression, although the association between GDS score > 10 and dementia was not significant. However, the mean score of GDS was significantly higher among those with moderate as compared to mild dementia ($p < 0.05$).

With respect to the co-morbidity of dementia with cardiovascular risk factors, Ogunniyi¹⁵ reported that 18.2% of the 77 patients with dementia had Vascular Dementia- a high percentage hypothesized to be due to the high frequency of diabetes mellitus and hypertension in KSA. The associated medical conditions that Ogunniyi¹⁵ found among the 77 patients were diabetes mellitus with hypertension (11 patients), diabetes mellitus (10 patients), hypertension, osteoarthritis and prostatic hyperplasia (5 patients), ischemic heart disease (2 patients), and other medical problems (27 patients). None of the patients reported having HIV-associated dementia, a rare condition in KSA.

In Oman, Shelley⁴ found that ischemic heart disease and cerebrovascular disease were more frequent in VaD as compared to AD. In the case of vascular risk factors between AD and VaD subtypes: diabetes mellitus, hyperlipidemia, ischemic heart disease, and cerebrovascular disease were significantly higher in the VaD subtype. However, hypertension was not found to be more commonly in VaD than AD.

Treatment and other medical considerations

A study by Malasi²⁶ in Kuwait investigated the relation between clinical aspects of elderly aged 60+ and their duration of stay at a psychiatric hospital. Short stay was defined as less than 6 months, whereas long stay was defined as greater than 6 months. The results show that

the duration of stay at the hospital was not significantly related to diagnosis of dementia.

Ogguyini¹⁵ in KSA studying 77 patients with dementia verified that AD cases were managed with antipsychotic medication for aggressiveness, whereas those with VD additionally had low dose aspirin (100 mg). Patients with Parkinson's disease and dementia also continued with anti-Parkinson's drugs. Follow-up of treatment was limited; it is to be noted that this was the case even though all Saudis have free access to treatment.

Also in KSA, a study by Al-Mobeireek²⁷ investigated 249 physicians' attitudes towards "do not resuscitate orders" (DNR) and factors influencing resuscitation decisions. The hypothetical situation involved a 50-year-old man suffering from severe dementia and dependence on others for basic living activities and was admitted with pneumonia; 61% of physicians recommended DNR for the patient. Physicians reported that the patient's dignity and pre-morbid cognitive function as the most important factor influencing their DNR decision. Religious and legal concerns were next in importance. However, the patient's age and cost of care were not important aspects.

Margolis¹⁶, studying elderly in a nursing home where 89% had dementia, recognized that reliance on home-based care in the UAE traditional society, which places great importance on respect to the elderly, is common. It is evident that only when the burden of caring for the patient is too severe on families, do they resort to institutionalized care. Also, families often provide personal servants to their hospitalized elderly, which possibly symbolizes their need to continuously support their older relatives.

In Egypt, Ahmed²⁸ studied the effect of repetitive transcranial magnetic stimulation (rTMS) on patients with AD. rTMS can interfere with brain function when applied over a region and can change behavior related to that region (e.g. memory or naming). It is usually given over long periods to have a long-lasting effect as part of therapy. The study addressed the potential of rTMS applied bilaterally over the left and right dorsolateral prefrontal cortex (DLPFC) daily for five days on MMSE, GDS and Instrumental Daily Living Activity (IADL) scale of patients with AD. It also compared the effect of low versus high frequency rTMS. The authors found that high frequency rTMS improved scores significantly more than the low frequency rTMS in all rating scales and at all-time points after treatment. Moreover, the treatment with 20 Hz reduced the duration of transcallosal inhibition. They concluded that such a treatment could be an add-on to therapy as it improves cognitive function in patients with *mild to moderate* degrees of AD for a duration of three months.

Shelley⁴ stated that behavioral and psychological symptoms of dementia (BPSD) are underreported in Oman, as patients are admitted for medical care only when BPSD is severe. Hence, most demented individuals are cared for by their spouses or elderly family members despite the high burden of BPSD. This is for fear and

stigma associated with being labeled as “having a mental illness”, for this reason raising awareness among the Omani population about BPSD is needed for symptoms of dementia are commonly confused as “the natural consequences of ageing”. Shelly also suggested that general practitioners in Oman must be encouraged to recognize that BPSD could result from cholinergic deficiency, and thus can be soothed with cholinesterase inhibitors.

In Jordan, Khatib²⁹ studied 48 psychiatrists and psychiatric residents for data on patterns of referral, symptoms, diagnosis and management of dementia. Results showed that 95.65% of patients were referred by their family, and 6.52% were referred by the physician. Out of the 6% who were referred to by a physician, 50% of them were general practitioners, whereas 21.7% of them were neurologists and 30.4% were internists. Also, 84.8% of patients were not diagnosed with dementia at time of referral, reflecting delay in seeking treatment until behavioral problems are difficult to be managed. The most common presentations include: behavioral problems (63%) and memory problems (30.4%) followed by personality change (15.2%) and sleep disturbance (10.9%). Mood problems were reported in 2.2% of the patients. With respect to diagnosis, 82.6% of the time it was based on clinical examination, and less on neuropsychiatric testing (23.9%) and imaging (4.4%). Only 2.2% of psychiatrists requested laboratory testing. 73.8% used cognitive testing. Whereas, the medications provided included mostly antipsychotics (65.2%), anti-choline esterase inhibitors (26.1%) and antidepressants (19.6%) were prescribed too. In conclusion, the authors emphasize that early management of the disease is neglected and recommend the following: public awareness, special services for demented patients, and the need for medical education of primary health care physicians. They also recommend potentially using the MMSE as a screening tool of dementia for those who are above 65 years of age.

Lastly, in 2009, a publication from Algeria by Cherif³⁰ summarized international findings in the field about gamma-secretase inhibitors that prevent the deposition of A-beta-peptides in Alzheimer's disease.

Discussion

A report about demographics in the Arab world classified 6% of the Arab population as above the age of 60 in the year 2010. However, this percentage is expected to rise to 17% by the year 2050³¹. As such, the neglect of this disease on both the research and community intervention levels is bound to have more severe consequences. The lack of research in the Arab world into dementia, especially at the community level, could be attributed to the following reasons: poor awareness and neglect of the disease, scarcity of the specialized institutions, limited funding as well as a lack of national registries related to the disease. Results show no important studies in the following Arab countries: Algeria, Bahrain, Gaza, Iraq, Libya, Morocco, Palestine,

Tunisia, Sudan, Syria, and Yemen. In all cases, it is essential to note that the results of articles included in the current review should be interpreted with caution due to limitations found with respect to sampling procedures, instruments used and statistical methods.

A systematic review of published studies, using the Delphi method to estimate the prevalence of dementia in WHO regions, emphasized that there is a lack of studies in the North Africa and Middle East region for that purpose. Despite that, the consensus dementia prevalence at age greater than 60 years was estimated at 3.6% for the region. As expected this is much lower than the prevalence rates in clinical samples reported hereby, but also higher than the 2.3% reported by the community study in Al Kharga District, Egypt. Moreover, the estimated prevalence rate in the Middle East and North Africa was lower than that of the European region, the Americas and the Western Pacific region (where the prevalence consensus ranged between 3.8 and 6.4%) but higher than South East Asia and Africa (where the prevalence consensus ranged between 1.6 and 2.7%)³².

As expected, the age patterns reported in the current review show that dementia mostly affects the elderly population. As for gender, studies in the literature have reported a greater prevalence in women than in men. Yet, considering female gender as a risk factor is still under investigation for the possibility that this could be confounded by the fact that women live longer than men. This review reported two different results with respect to gender; Chahine¹³ showing no significant difference while Ghouloum¹⁴ showed a greater susceptibility of women.

Four studies included in the review studied the Apo E4 allele. The effect of Apo E4 on the risk of dementia varies according to ethnic groups, which emphasizes the importance of such studies on the Arab population³³. Elwan¹⁷ found an odds ratio of 9.47 for homozygous patients, and 3.3 for heterozygous ones. This is similar to findings reported by Corder³⁴ whereby a gene dosage effect for AD was 11.6 and 3.2 for two or one carrier of E4 alleles respectively, relative to E3/E3 individuals. Yet, it is important to note that about half of E4 homozygotes do not contract AD by 90 years of age, and lack of the allele does not ensure immunity from the disease³⁵. Thus, the ApoEE4 gene or protein does not constitute a biological marker of AD and its utility as a routine AD diagnostic tool is minimal or null^{36,37}. In addition, a research gap exists with respect to studying interactions of Apo-E4 allele with factors such as nutrition and cardiovascular risk factors.

There is an obvious need to increase awareness about the symptoms of dementia to avoid the obvious delay in seeking treatment. Such awareness must target the community (in order to reach the social network of elderly people), in addition to physicians. De-stigmatizing the disease is essential for this purpose. Moreover, a lack of knowledge about the possible health resources that could be provided to elderly with dementia

is another barrier for seeking care. Besides the issue being grounded in human rights, caring for elderly with dementia is often a psychological and even financial burden on families. For example, according to the Alzheimer's Association in the US, the national cost of dementia including long-term care and hospice was 183 billion dollars in 2011, and is expected to increase to 1.1 trillion dollars in 2050³⁸. Caregivers could be trained about coping with their responsibilities. Last but not least, little is known about the nature of nursing homes and whether they are truly Alzheimer's friendly.

The first conference about Alzheimer's disease in the Arab world, organized by Alzheimer's Association Lebanon and held in 2005, concluded with policy recommendations including: (1) to establish civil societies and government agencies in Arab countries; (2) to invite universities and specialized centers to conduct research and surveys about dementia and the services offered from private and public institutions; (3) to include the rights of dementia patients in the Arab legislation as per international proclamations of the UN about the rights of Alzheimer's patients³⁹.

Conclusion

In conclusion, the results of the current review show that there is a need for nationally representative data that would enable comparison between countries in the Arab region. With an ageing population, the burden of dementia disorders could differ. For some countries in the Arab region, no significant data has been identified. Moreover, there is a general need for public education at the population and clinical levels for the early detection of this disease. Last but not least, interesting research questions are yet to be investigated with respect to: socio-demographic risk factors, genetic risk factors specific to the Arab region, the attitudes of the public towards dementia, the financial burden of the disease and the quality of life of dementia patients.

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Table 1 Summary of studies about dementia in the Arab world

Country	Author(yr)	Sample (n)	Instrument/Diagnostic Criteria	Main Finding(s)
Egypt	Tallawy et al. (2010)	Inhabitants of Al Kharga district; (N=2,583)	Survey administered by neurologists, WHO accepted criteria (final diagnosis by neurologist staff)	Age-specific rate of dementia: 22.6/1000 inhabitants 50+
	Khater et al. (2011)	Older adults living in elderly homes in Cairo; (N120)	Medical history, physical examination, activities of daily living (ADL), Instrumental Activities of Daily Living (IADL), MMSE, Montreal Cognitive Assessment	Malnourished older adults had significantly poorer performance on MMSE (p<0.001) as compared to those who were well-nourished
	Ahmed et al. (2011)	AD patients; (N45)	MMSE, GDS, Instrumental Activities of Daily Living (IADL), NINCDC-ADRDA	High frequency repetitive transcranial magnetic stimulations improved scores on MMSE, GDS and IADL significantly more than low frequency stimulations.
	Elwan et al. (2003)	Normal Egyptian subjects ; (N94)	Genetic tests for detection of genotype (ApoE), Paced Auditory Serial Addition Test, Intentional Memory Test, Incidental memory test, Digit Symbol Substitution test, Trail Making Test A and B, Eysenck Personality Tests	Subjects with ApoE E4 did significantly worse on sensory memory. No significant differences were shown for other tests.
Jordan	Khatib el al. (2007)	Psychiatrists and psychiatric residents (population frame: Jordan psychiatric association); (N48)	Personally conducted questionnaire about: referral procedures, symptoms, means of diagnosis and management protocol	Need for early detection of dementia.

Kuwait	Malasi et al. (1988)	Psychiatric hospital patients in Kuwait; (N53)	Semi-structured interview, DSM-III	% of dementia: 11.3%
Lebanon	Chahine et al. (2007)	Nursing home residents (3 homes); (N102)	MMSE, and GDS	% of dementia: 59.8%
Oman	Shelley et al. (2007)	Omani patients at national tertiary referral hospital with probable dementia; (N116)	MMSE and diagnosis on DSM IV criteria, and Clinical Dementia Rating Scale	Hospital frequency of dementia: 59/100,000
Qatar	Ghuloum et al. (2011)	Patients attending primary healthcare setting; (N1660)	Validated self-administered questionnaire	% of dementia: 52.6% among those age 50+
KSA	Ogunniyi et al. (1998)	Patients with dementia; (N77)	DSM-IV and ICD-10; Used Hospital records	% of dementia: 51.9%: AD -18.2%:VaD - 15.6%:mixed dementia (AD and VaD)- 7.8%:dementia with Parkinson's- 5.2 %: treatable dementia- 1.3%: other
	Mobeireek et al. (2000)	Physicians from six hospitals (Departments of internal medicine and critical care); (N=249)	Self-completed questionnaire	Investigated physician attitudes:61% of physicians recommended "do not resuscitate order" to a 50-year old dementia patient with pneumonia.
Tunisia	Smach et al. (2010)	AD Patients and Control Subjects (matched according to age and gener) ; [N=206 (controls:113, patients:93)]	Genetic tests, MMSE, NINCDS-ADRD	For VEGF promoter: -2578AA genotype was higher in AD patients with Apo-E4 status as compared to controls (p=0.034)
	Smach et al. (2008)	AD patients (n=73), non-AD dementia (n=35), and healthy controls (n=38)	Genetic tests, MMSE, NINCDS-ADRD	ApoE E4 allele frequency was significantly higher in AD patients compared to the control (29.5% vs 9.5%; p<0.001)
	Margolis et al. (2000)	Nursing home patients in Al-Ain Medical District; (N=47)	Clinical information and records	% of dementia: 89%
	Sassi et al. (2012)	G2019S carrier vs. non-carrier Parkinson's patients; (n=55 in each group)	MMSE, GDS, Montreal Cognitive Assessment (MOCA), Frontal Assessment Battery (FAB), Schwab and England Scale, Hoehn and Yahr stage, Movement disorder society-unified Parkinson's Disease rating scale (MDS-UPDRS)	No significant differences between the two groups of patients, except for the GDS>20.
	Rassas et al. (2012)	AD patients (n=58) and control(n=71)	MMSE and PCR-RFLP, and clinical examination	ApoE E4 allele is higher in AD patients vs. controls.(OR=5.4 for homozygous, and 2.9 for heterozygous)

المخلص

الهدف: إنشاء ملخص عن الدراسات التي تركز على الخرف في الدول العربية والتي صدرت قبل عام 2013. **طريقة البحث:** استخدمت كلمات رئيسية للبحث عن الدراسات ومنها: الخرف، ضعف وفقدان الذاكرة. ثم، تم الإطلاع على جميع النتائج وتم تصنيف المعلومات بحسب تعلقها: بإنتشار المرض بشكل عام وبحسب الجنس والسن و عوامل ديمغرافية أخرى، بالإضافة إلى العوامل الوراثية وأنماط علاج المرض. **النتائج:** معظم الدراسات التي تتعلق بالخرف في العالم العربي تركز على عينات طبية. تشير الدراسات إلى ارتباط المرض بزيادة العمر و إنخفاض مستوى العلم وتختلف النتائج بالنسبة للجنس. أيضاً، الدراسات الوراثية تركز على ApoE E4 كعامل خطر لهذا المرض. بالإضافة إلى ذلك، تشمل الدراسات أمراض أخرى وتعلقها بالخرف ومنها: سوء التغذية، الإكتئاب، وأمراض القلب والشرابيين. غالباً ما يتم تأخير العلاج لهذا المرض، وتعتبر العوارض جزءاً من زيادة السن. **الخلاصة:** هناك حاجة لإجراء دراسات عن الخرف على المستوى الوطني في العالم العربي. وأيضاً، هناك حاجة لزيادة الثقافة العامة وعلى الصعيد الطبي هدف الكشف المبكر لهذا المرض.

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