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The Journal is biannual published in May and November electronically and as hard copy. Original scientific reports, review articles, and articles describing the clinical practice of Psychiatry will be of interest for publication in AJP. The Articles should not be published before. The articles may be written in English or Arabic and should always be accompanied by an abstract in English and Arabic. All Papers are accepted upon the understanding that the work has been performed in accordance with national and International laws and ethical guidelines. Manuscripts submitted for publication in the Arab Journal of Psychiatry should be sent to:

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- Title, running head (Max: 40 letters), title of the article in English and Arabic, the names of authors should be without their titles and addresses in both languages.
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## **Editorial Letter**

**Dear Colleagues,**

It is my pleasure to introduce this latest edition of the Arab Journal of Psychiatry, which marks its 30<sup>th</sup> year of publication. There is no greater news to mark the anniversary than the recent announcement that the AJP's impact factor has met the rigorous criteria set by ARCIF and has achieved a rating of 0.0732, which is the middle category. If you would like to learn more about the Arab Citation & Impact Factor process, the information is available via <http://emarefa.net/arcif/criteria/>. It raises the Journal in rank to be among the best of its kind in the Middle East and North Africa for the field of psychiatry and mental health generally.

This marvelous achievement belongs to all who have supported the Journal over these many years whether through submission of excellent scientific articles or through the equally arduous process of bringing it to publication each time. I would like to express my gratitude to Raja Nasrallah for her tireless dedication to the many administrative duties she carries out for the Journal each time and to Tori Snell for her relentless work editing it over the past decade. It is my belief that the coming years will see even greater developments for the Journal, including more collaborative work within the various editorial teams and the very real possibility that an institute will take on the responsibility for guaranteeing the Journal's sustainability and, therefore, its remarkable legacy.

Finally, the AJP is making its own contribution to our Earth by reducing its carbon footprint as an online publication only. I am proud to launch this first-ever, online only edition with its characteristically excellent range of scientific articles and hard-earned impact factor.

Sincerely,

**Walid Sarhan**

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سعادة أ. د. رئيس تحرير المجلة العربية للطب النفسي  
اتحاد الأطباء النفسيين العرب / الأردن  
تحية طيبة وبعد،،،

نتقدم إليكم بفائق التحية والتقدير، و نهديكم أطيب التحيات وأسمى الأمانى.

يسر معامل التأثير والاستشهادات المرجعية للمجلات العلمية العربية (ارسيف - ARCIF)، أحد مبادرات قاعدة بيانات "معرفة" للإنتاج والمحتوى العلمي، إعلامكم بأنه قد أطلق تقريره السنوي الرابع للمجلات للعام ٢٠١٩، خلال الملتقى العلمي "مؤشرات الإنتاج والبحث العلمي العربي والعالمى فى التحولات الرقمية للتعليم الجامعى العربى" بالتعاون مع الجامعة الأمريكية فى بيروت بتاريخ ٣ أكتوبر ٢٠١٩.

يخضع معامل التأثير "Arcif ارسيف" لإشراف "مجلس الإشراف والتنسيق" الذى يتكون من ممثلين لعدة جهات عربية ودولية: (مكتب اليونيسكو الإقليمى للتربية فى الدول العربية ببيروت، لجنة الأمم المتحدة لغرب اسيا (الإسكوا)، مكتبة الاسكندرية، قاعدة بيانات معرفة، جمعية المكتبات المتخصصة العالمية/ فرع الخليج). بالإضافة للجنة علمية من خبراء وأكاديميين ذوى سمعة علمية رائدة من عدة دول عربية وبريطانيا.

ومن الجدير بالذكر بأن معامل " ارسيف Arcif " قام بالعمل على جمع ودراسة و تحليل بيانات ما يزيد عن (٤٣٠٠) عنوان مجلة عربية علمية أو بحثية فى مختلف التخصصات، والصادرة عن أكثر من (١٤٠٠) هيئة علمية أو بحثية فى (٢٠) دولة عربية، ( باستثناء دولة جيبوتي وجزر القمر لعدم توفر البيانات). ونجح منها (٤٩٩) مجلة علمية فقط لتكون معتمدة ضمن المعايير العالمية لمعامل "ارسيف Arcif" فى تقرير عام ٢٠١٩.

ويسرنا تهنئكم وإعلامكم بأن **المجلة العربية للطب النفسى** الصادرة عن **اتحاد الأطباء النفسيين العرب**، قد نجحت بالحصول على معايير اعتماد معامل "ارسيف Arcif" المتوافقة مع المعايير العالمية، والتي يبلغ عددها ٣١ معياراً، وللإطلاع على هذه المعايير يمكنكم الدخول إلى الرابط التالى: <http://e-marefa.net/arcif/criteria>

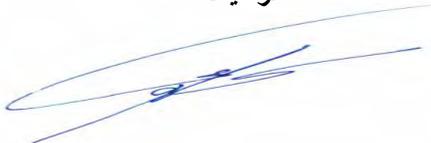
و كان معامل "ارسيف Arcif" لمجلتكم لسنة ٢٠١٩ (٠.٠٧٣٢٢). ونهنئكم بحصول المجلة على:

- **المرتبة الأولى** فى تخصص "العلوم الطبية والصيدلة والعلوم الصحية" على المستوى العربى، مع العلم أن متوسط معامل أرسيف لهذا التخصص كان (٠.٠٣٢)، وصنفت مجلتكم فى هذا التخصص ضمن الفئة (الأولى Q1)، وهى الفئة الأعلى.
- كما أن متوسط معامل أرسيف فى تخصص "علم النفس" على المستوى العربى كان (٠.٢١٢)، وصنفت مجلتكم فى هذا التخصص ضمن الفئة (الثالثة Q3)، وهى الفئة الوسطى.

و بإمكانكم الإعلان عن هذه النتيجة سواء على موقعكم الإلكتروني، أو على مواقع التواصل الاجتماعى، و كذلك الإشارة فى النسخة الورقية لمجلتكم إلى معامل "ارسيف Arcif" الخاص بمجلتكم.

وتفضلوا بقبول فائق الاحترام والتقدير

أ.د. سامى الخزندار  
رئيس مبادرة معامل التأثير  
" ارسيف Arcif "



## Table of Contents

### Editorial

- **The Role of Cultural Beliefs on Mental Health Treatment**  
Alean Al-Krenawi ..... 88

### Review articles

- **Autism: From Leo Kanner to ICD-11 and DSM-5**  
Abdil-Monaf Al-Jadiry and Aseel Al-Jadiri ..... 100
- **What do we know about bullying: A Review of Reviews, 2014- 2019**  
Caroline Tabet, Jennifer Abou Samah, Natasha Hakim, Elie Karam ..... 115

### Addiction

- **Relapse Following Treatment of Drug Dependence in the Gulf Cooperation Council Countries: A Systematic Review and Meta-Analysis**  
Shaikha Nasser AlAhmad, Meshari Faisal AlMehri, Esraa Tareq AlHammad, Waleed Khaled Almasoud, Haitham Ali Jahrami, Adel Rashid AIOffi, Randah R Hamadeh ..... 129
- **Substance Use Disorders among Psychiatric Outpatients in the Kurdistan Region of Iraq**  
Sirwan Kamil Ali, Jaafar Omer Ahmed ..... 143

### Original papers

- **Posttraumatic Stress Disorder and Resilience among Palestinian Adolescents in the Gaza Strip**  
Issa Alibwaini and Abdelaziz Mousa Thabet ..... 151
- **Cognitive Dysfunction in a Sample of People with Bipolar Affective Disorder**  
Taghreed M, El Shafei Rania H. Mohamed, Rania A.Hamed, Haydi E.Ghoneim ..... 160
- **Assessment of Anxiety Comorbidity in Patients with Schizophrenia**  
Aia M. Ibrahim, Ashraf M. El-Tantawy, Khaled A. Mohamed, Mona E. Hady ..... 173
- **Underreporting Bullying Experiences among Nursing Students in Clinical Training Sitings: A Descriptive Study**  
Mohammad Qutishat ..... 182

### Arabic paper

- **Psychotic-Like Experiences**  
Adib Essali ..... 191

## The Role of Cultural Beliefs on Mental Health Treatment

Alean Al-Krenawi

دور لمعتقدات ثقافية في علاج لصحة النفسية

أليان الكرنوي

### Abstract

Cultural beliefs influence patient experiences with mental illness and symptom presentation, leading to difficulties in making a psychiatric diagnosis. In developing countries, and among migrant communities in developed countries, people continue to use traditional treatments despite the introduction of Western health care services. The current review provides background information on cultural beliefs and their influence on behavior regarding mental illness, highlighting the complex environment in which general health workers practice. The review includes case studies from Papua New Guinea, as little is known about the impact that diverse cultural-linguistic beliefs have on culture-specific diagnoses, traditional treatment, and the management of mental health in this country. Knowing the types of mental health problems general health workers manage in the community, and adequate knowledge in both cultural and Western mental health issues, is necessary for the effective provision of mental health care.

**Key words:** Mental health, Cultural beliefs, Diagnosis, Treatment, Traditional healing

**Declaration of interest:** None

### Introduction

Many studies have reported that cultural beliefs influence experiences with illness and the presentation of symptoms, leading to difficulties in making a psychiatric diagnosis. To address this issue, the author reviewed case studies from Papua New Guinea (PNG). Little is known about the impact that diverse cultural-linguistic beliefs have on culture-specific diagnoses, traditional treatment, and the management of mental illness in PNG. However, we do know that people continue to use traditional treatments despite the introduction of Western health care services.<sup>1,2</sup>

Traditional treatment is usually sought based on cultural beliefs about the cause of illness prior to utilization of Western health care services. Medication is seen as a last resort and a symptomatic treatment, whereas traditional treatment is seen as the cure for the cause of the illness.<sup>3-7</sup> Some people use both types of treatment at some stage of their illness. Cultural issues are not adequately covered in predominantly Western classification systems, such as the International Classification of Diseases 11<sup>th</sup> Revision (ICD-11) and the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Thus, there is a clear need to improve health workers' understanding of the

cultural/Western dichotomy and its impact on the diagnosis and treatment of mental illness.

Little is known about how confident general health workers are in dealing with the complex cultural issues among people with mental health problems. The current review provides background information on cultural beliefs and their influence on behavior regarding mental illness, highlighting the complex environment in which general health workers practice and why it is important to assess the general health worker's level of competence in dealing with mental health issues in a dual system (traditional and Western). Knowing the types of mental health problems general health workers manage in the community and awareness of their need for adequate knowledge in both cultural and Western mental health issues are necessary for the effective provision of mental health care.

### Cultural beliefs regarding causes of mental illness

Anthropological and psychological reports suggest that people's beliefs concerning causes of psychological and physical illness vary across cultures.<sup>8-11</sup> Many cultures

commonly believe that some forms of supernatural agents are responsible for causing illness.

In Malaysia, people believe in black magic, spirit possession, supernatural agents, and religious causes of illness.<sup>11-19</sup> In Africa, the Malawi people believe in witchcraft and jealousy of achievements,<sup>20, 21</sup> the Swahili people of Kenya believe in supernatural and spiritual causes,<sup>22, 23</sup> and the Ulanga people in Southern Tanzania believe illnesses are caused by social relationships with other people and spirits.<sup>24-26</sup> Similar patterns exist among the Yoruba people of Nigeria<sup>27-29</sup> and other parts of Africa.<sup>30</sup> In India, epilepsy, schizophrenia, and other forms of mental illness are perceived to be caused by Karma, demons, and spirits.<sup>31-33</sup> A similar pattern of causal beliefs exists in the Middle East.<sup>34</sup>

Different cultural and ethnic groups have diverse beliefs in not only developing countries, as this is also the case between ethnic migrant and native groups in developed countries. For example, in Australia, Vietnamese refugees have been found to have their own causal beliefs in supernatural agents.<sup>35,36</sup> The Aborigines also believe illnesses are caused by spirits.<sup>37</sup> In the United States, several studies of ethnic American students and other migrant ethnic groups (Japanese American, Filipino American, Caucasians, and Koreans) have demonstrated different cultural beliefs about the cause of mental illness.<sup>10,38-42</sup> In the United Kingdom, similar types of beliefs have been described among other ethnic migrant groups.<sup>43-45</sup> Among the Bedouin Arabs living in Israel, sorcery, evil eye, and possession are considered common causes of psychiatric illnesses.<sup>46</sup>

In PNG, most people who receive limited formal education generally have limited knowledge of infection, germ theory, or chemical imbalances in the brain or other scientific definitions and classifications of illness.<sup>47</sup> People's beliefs of the causes of both psychological and physical illness are generally centered on spirit possession/supernatural agents, sorcery, violation of social taboos or envy of the achievements of others.<sup>1, 4, 5-7, 47-60</sup>

Burton-Bradley<sup>54,61</sup> reported that one-fourth of the world's languages are spoken in PNG and, in association with the languages, there is considerable diversity in culture-linguistic groups. "Each group has its own pattern of psychiatry, its own mental health system for dealing with

disturbed people and its own categorization, nosology, and definitions of illness".<sup>51</sup> Although beliefs and practices differ among different cultural-linguistic groups, beliefs in sorcery and spirit possession appear to be common and widely held among all groups.<sup>7, 48, 54</sup>

Spirit possession is a known part of Islamic tradition and often perceived as the cause of hallucinations and other interferences of the senses. Spirits are called "Jinn", they are vaguely feared and not always malevolent.<sup>62, p. 153</sup> They are distinguished from other cultural concepts of a more pernicious possession by the devil.<sup>63</sup> Evil spirits can sometimes act alone, but most of the time they are believed to be acting in accordance with God's orders. This can happen because the sick individual has sinned and, therefore, God sent the spirits to possess him as punishment.<sup>64</sup>

For example, patient M, a 31-year-old man, married, without children, and life-long resident of the Negev (the southern part of Israel) was diagnosed as a paranoid schizophrenic and suffered from hallucinations. He perceives the images that haunt him as "Jinns" and believes that the root cause for his condition lies in the ways he disrespected his parents, especially his mother. This is a grave offense in Arab Bedouin tradition.<sup>63</sup>

Spirits can be healed by a "Darvish", a traditional healer versed in the holy text of the Koran, who is able to communicate with and overpower the evil spirits. There are several schools of thought when it comes to the training of a "Darvish", and the result is a mixture of different kinds of therapeutic approaches. A "Darvish" can try to overpower the spirits and command them to leave, or it can try to communicate with them to understand the reason for the possession and then act accordingly.<sup>64</sup>

The influence of these cultural beliefs regarding the causes of mental illness is important to understand. They affect the way diagnosis and treatment should be performed and have a clear effect on the way the patient perceives their illness and how they choose to seek medical assistance, if they seek it at all.

### **The influence of cultural beliefs on help-seeking behavior**

Cultural beliefs and perceptions related to causes of mental illness have been found to influence illness experiences, presentation of symptoms, help-seeking behavior, and the treatment approach used in many cultures.<sup>65-68</sup> For example, Indian patients with epilepsy, who believe in supernatural agents as the cause of their illness, tend to consult traditional healers prior to seeking Western treatments. Others who do not believe in supernatural causes see Western treatment as the preferred approach.<sup>31</sup> Campion and Bhugra<sup>69</sup> found that 48% of Indian patients seek alternative traditional treatment prior to seeking psychiatric help. Other studies among Indians with a diagnosis of schizophrenia have shown similar patterns of seeking traditional treatment.<sup>32,70</sup>

Studies in Africa,<sup>27,28,30</sup> Asia,<sup>12,16,71-73</sup> and the Middle East<sup>34</sup> have also described similar patterns of consulting traditional healers and using traditional and alternative treatment prior to using Western health services. Urdaneta *et al.*<sup>40</sup> reported that, in the United States, Mexican-Americans' cultural beliefs about causes of illness also influence their help-seeking behavior, which leads them to consult traditional healers and use traditional treatment prior to consultation with health workers. Flakerud<sup>74</sup> and Abe-Kim *et al.*<sup>75</sup> presented similar findings on other migrant groups seeking traditional and alternative treatments prior to Western treatment. In Australia, a similar pattern was reported for Vietnamese refugees.<sup>35</sup> Jorm *et al.*<sup>75</sup> reported that the general public in Australia prefer lifestyle changes and diets to professional treatment. The researchers reported that treatments overwhelmingly rated most helpful by mental health clinicians were rated as harmful by the public. Strongly held causal belief systems regarding mental illness appear to dictate the seeking and use of treatment approaches.

The use of traditional treatment appears to be based on underlying cultural beliefs about causes of mental illness.<sup>20,77,78</sup> For example, Razali and Najib<sup>72</sup> found that 69% of 134 Malay psychiatric patients consulted traditional healers prior to consulting psychiatrists for their present illness. Brodwin<sup>79</sup> pointed out that both traditional and Western methods of treatment can be used, either separately or in combination with medication. However, in several cultures, medication is seen and used as a symptomatic treatment, whereas traditional treatment is used as a cure for the cause of the illness.<sup>11,31,80</sup> Studies of different cultures in 26 countries have found that rural communities in particular rely very little on psychotropic medication and regularly use alternative community healing techniques.<sup>81,82</sup> This was especially the case in India and Africa.<sup>83</sup>

In Israel, the Arab population underutilizes specialized mental health care services compared to the Jewish majority.<sup>84</sup> When a problem first appears, Arab patients usually turn to their families for support, and the families encourage the patient to rely on traditional cultural treatment if the Western general practitioner failed to solve the problem.<sup>84,85</sup> There is great fear of stigmatization that can accompany a diagnosis of mental illness in Arab society. Traditional healers can treat individuals using non-stigmatizing modes of culturally acceptable rituals and practices and are frequently preferred over modern mental health practitioners.<sup>86</sup>

### Main types of traditional treatment approaches

Traditional treatment in Arab Bedouin society is centered around the performance of healing rituals. The main ritual is called "rijal Allah al-Salhin" (invocation of saints, of God, and of the Prophet Muhammad). During the ritual, a special technique is deployed called "Tazeem", a form of dialogue with the spirit that enables the healer to understand the reason why the patient is being possessed and to resolve it through persuasion or confrontation with the spirit.<sup>64</sup> Music is always an important part of the ceremony, as spirits are thought to be attracted to and affected by music. The sound of music can be used to allure the spirit and begin communication. Music can also be used to try and overpower the spirit and force it out. The "Dg Altaar" (drum) is used to drive the spirit away and release the patient from its harm. In some instances, when the spirit resists the treatment and refuses to leave, the healer may try to "beat it out" of the patient using a special stick.<sup>64,87</sup> The rituals usually take place in the patient's house and involve the close family. Family presence is an important part of the ritual, and the healer will often engage with them during the healing ceremony.<sup>63</sup>

However, the treatment is for not only the short term, but focusing more on the solution to the immediate problem. The "Darvish" is a religious authority and, just as Western physicians try to instill healthy lifestyles in their patients for the prevention of illness, the "Darvish" does the same from his perspective. They are interested in promoting a heightened religiosity among patients as a mode of healing and for better health later in life.<sup>64</sup> The "Darvish" may assemble several different patients and perform a ceremony that is meant to tighten their relationship with God. This ceremony is performed on the Thursday before the holy Sabbath and can be called a "Hadrh" (to invite a blessing from God) or a "Dhikr" (to remember or to

invoke God's name) depending on the school of thought to which the "Darvish" subscribes.<sup>64,88</sup>

### **The influence of cultural beliefs on the presentation of bodily symptoms**

A number of investigations have indicated that patients in many developing countries and among ethnic migrant groups in developed countries present with symptomatic complaints, such as weakness/pain in parts of their body in a manner that is consistent with their cultural beliefs, perceptions, experiences, and cultural orientation towards illness.<sup>89-92</sup> Some examples related to the presentation of somatic complaints with underlying cultural beliefs are given in the following paragraphs. In some cultures, bodily complaints are descriptions that communicate distress and are related to conditions, such as depression and anxiety, rather than psychosis.<sup>7,9,93</sup> These somatic complaints are cultural points of reference for illness in different cultures with underlying cultural causes.<sup>94-97</sup> Phan and Silove<sup>35</sup> commented that psychiatric diagnosis is complicated by the presentation of somatic symptoms, which make it difficult to know the exact prevalence of mental illness in developing countries.

In Arab Bedouin society in Negev (the southern part of Israel), somatic symptoms tend to be the initial presenting complaints before any onset of psychological symptoms. In a study conducted in 60 Arab Bedouins who were referred to a psychiatrist (36 women, 24 men), all sought the help of a general physician for physical pains. It was only after no physical cause was found for their complaints that they were referred to a psychiatrist.<sup>85</sup> In most cases, the patients themselves insisted that treatment by Western medical services will be limited to the physical realm only. Doctors often comply with the request and are not always culturally sensitive enough to notice the underlying mental factors of the problem until many tests are performed to rule out physical causes.<sup>46</sup>

Most of the somatic physical complaints among Arab Bedouins focus on headaches and heartaches. These are areas traditionally associated with the emotional state of a person.<sup>46,98</sup> There are gender differences in the type of somatic complaints; men complained of fatigue and physical pain and weakness, whereas women described how pain travelled in their bodies and often referred to their heart. The women also tended to rely more heavily than men on metaphorical language to describe subjective feelings. For example, one patient explained that her affect was like the color of her clothes – black.<sup>46</sup>

The cultural diagnoses may not be seen as diagnoses in the same way as those defined by Western classification systems. With culture-specific mental illnesses, there is often little distinction between causes and "diagnosis". Thus, conceptualization and classification, particularly of culturally specific mental health problems, are greatly influenced by culture, language, and beliefs.<sup>7,48,50,53,54,99,100</sup> The causal beliefs and culture-specific diagnoses determine the type of traditional treatment to be applied. Therefore, beliefs regarding the cause of the illness, the presentation of somatic symptoms by the person with the illness, the establishment of a culture-specific diagnosis, and the types of traditional treatment prescribed either by the traditional healer or the general health care workers, are all entwined.

For general health workers dealing with mental health problems, an understanding of cultural norms, beliefs, and the presentation of somatic symptoms leading to culture-specific diagnoses is vital. The workers require both the knowledge and clinical judgment to look beyond the presenting somatic complaints. An understanding of these cultural issues will assist in making an accurate diagnosis and appropriate treatment decisions. It is imperative that, in every clinical encounter, the patient's culture and perceptions be considered by the health workers.<sup>101</sup> Failure to understand the cultural issues may lead people with mental health problems to be treated for the physical complaints and not the underlying psychological problems. In other words, lack of cultural knowledge and understanding could lead to misdiagnosis and inappropriate treatment.

An actual case study that demonstrates this point is a 35-year-old Papua New Guinean woman who, for more than six months, was treated on numerous occasions with painkillers for a complaint of breast pain. She had a biopsy to rule out breast cancer and other pathology tests to rule out other possible physical causes. The painkiller tablets did not improve her situation. She was eventually referred to a psychiatrist who prescribed a course of antidepressants. The woman told the psychiatrist, who was also a woman, that she was the first doctor to give her a medication that cured her pain. The psychiatrist identified that the patient's symptoms developed after her husband married a second wife, causing her to feel rejected and unloved. The breast was the site of a psychological pain and, as previously noted, is connected by the culture to feelings of love. The patient could not object to the second marriage of her husband, talk to

anyone about her feelings, or express her feelings freely because her culture permits polygamy. To go against this tradition would alienate her from her community.

This case is an example of a patient who suffered a grief reaction, reactive depressive illness, or unrecognized "cultural idiom of depression".<sup>7</sup> The case was initially diagnosed and treated as a physical ailment and referred to a psychiatrist only as a last resort when this approach did not succeed.

### **Other cultural phenomena likely to complicate psychiatric diagnoses**

Certain cultural phenomena in different cultural groups can sometimes be mistaken for symptoms of mental illness. These symptoms can complicate psychiatric diagnosis if cultural norms and abnormalities regarding these symptoms and phenomenon are not understood. The normal becomes abnormal only when it exceeds the standard boundaries set by the concerned cultural-linguistic group. Two common phenomena are treatment towards aggression and violent behavior, and attitude towards dreams and their interpretations.

Aggression and violence can be interpreted in different ways depending on the culture. Though most cultures would agree that violent and aggressive behavior is wrong, what determines "wrong" lies in the cultural norms and cultural context. This can often lead to problems when diagnosing a mental illness. For example, in Pakistani society, any type of aggressive behavior is considered rude and out of order. In that society, any individual who exhibits aggressive behavior, particularly in familial situations, could be branded as mentally ill and suffering from depression.<sup>45,102</sup> It is important for general physicians to be aware of this, as often during diagnosis, the testimony of family members regarding the patient's behavior carries a lot of weight.

Another important aspect is dreams, particularly recurring dreams. Dreams are often described in detail to physicians as part of the symptoms that are troubling Arab patients. This is especially common among Arab women. However, physicians are often reluctant or unable to access the symbolic world of the patient due to cultural gaps in perception.<sup>46</sup> This can also create a situation in which proper diagnosis and treatment options are hindered due to lack of sufficient cultural training.

### **Language and terminologies describing mental illness**

In Arabic, there are several terms often used to describe mental illness and its symptoms. However, these are not as precise as Western medical terms and are vague or non-specific. In a lot of cases, people who demonstrate signs of mental illness will be described as suffering from *tisaramt* (mysterious disease).<sup>103</sup> Anti-social behavior that can characterize mental illness, such as aggressiveness or diminished communicative skills, can be attributed to what is called *Sahir* (evil eye).<sup>104</sup> Symptoms of anxiety or depression are generally called *Hariah*, and this does provide an adequate description of what Western psychiatrists would call displays of anxiety.<sup>46</sup> Other general behaviors that are out of the ordinary can be described as *Amaal* (sorcery). Though the word itself describes the act of sorcery, it can also be used to describe behaviors that are attributed to sorcery.<sup>85</sup>

As somatization is common among Arab people dealing with mental health issues, this trend is also reflected in the language. Often referring to troubles in the abdomen or head region (particularly among men) and the chest area (particularly among women) should also trigger a possible diagnosis of mental illness. It is common to describe these areas as "bad" when someone is feeling sadness or hopelessness.<sup>105</sup> The lack of specific terminology for mental health problems means that cultural descriptions of mental illness often refer to the term to describe it and the explanations for the cause. From an Arab cultural perspective, mental health problems are often spiritual, social, or interpersonal problems. However, when the framework cannot define the problem, those who share these characteristics will tend to utilize general health services and not see the need to use specialized mental health services. In other words, the majority of the Arab population has not been exposed or introduced to Western terminology, including depression, anxiety, schizophrenia, and other allied terms used to define a variety of mental health problems. Therefore, general health services are utilized rather than the limited social services.

### **Utilization of general versus specialist health services**

Razali and Najib<sup>72</sup> and Edman and Koon<sup>11</sup> argued that use of both traditional and Western health care services and treatments indicates "deep seated" religious and cultural beliefs and practices concerning the cause of mental illness. These deep-seated cultural beliefs and values are

likely to inhibit the utilization of Western health services in both developed and developing countries. This underutilization of Western health care services has been documented among the urban Pakistani community in the United Kingdom.<sup>45</sup> Similar behaviors have been reported among Vietnamese refugees in Australia,<sup>35</sup> Asian and Mexican immigrants in the United States,<sup>10,39,40,41,106</sup> and in developing countries, such as Malaysia.<sup>11</sup>

In the developed countries, there is a gap in the need for specialized mental health services and the number of people utilizing them. For example, in the United States, 15% of the population is reported to need specialist mental health services at any given time, but only 3% of Americans actually use specialist mental health services.<sup>107,108</sup> Although no specific reference has been made to the reason for underutilization, it is possible that it is due, in part, to the religious and cultural beliefs and values noted above. Many people with mental health problems in the general population are not accessing specialized mental health services.<sup>109,110</sup> Greenley and Mechanic<sup>111</sup> found that only those with a high risk of mental health problems utilize specialized services, whereas most people are comfortable utilizing general services.

A large-scale research study conducted with people from Kuwait, Palestine, and the Arab population of Israel found a similar pattern. Even if a person was not personally inclined to prejudice regarding mental health, there was still a high probability he would not utilize specialized health services.<sup>112</sup> The Arab population of 48 constitutes about 20% of the total population but consumes only about 2.8% of psychiatric services in clinics.<sup>113</sup> There are various factors in Arab countries or Arab populations in non-Arab countries that contribute to this trend. Often, there are problems with accessibility to specialized health care, either geographic or financial.<sup>114</sup> In Arab culture, decisions concerning sickness and treatment are usually not made by the individual alone, but in a familial context, and the perceived opinion of the whole community is a large factor. Therefore, even in families who are more open towards specialized health services, a decision to not utilize them can be made due to fears of stigma from the community.<sup>112</sup>

One must also consider the larger historical aspect of colonial rule. For many years, most of the Arab population was under European colonial rule. This made their exposure to Western medical services less than ideal and there is still a general notion that Western medical services

are intrinsically incompatible with Arab and Muslim culture.<sup>115</sup> This historical context must contribute to the cultural climate concerning the utilization of specialized medical services.

The data clearly suggest that there is a general trend of underutilization of specialized health care services for the treatment of mental health problems in the Arab world. Like other indigenous and ethnic minority communities, cultural and social elements are a considerable factor. This is why cultural training and education for general health care providers is necessary, as it enables health care systems to deal more effectively with the Arab population and ensure people are directed towards the care they need.

### **Knowledge and understanding of mental health issues what is necessary for general health workers**

Global studies have reported that, because general health workers are gatekeepers of mental health care, they are highly likely to provide the bulk of mental health care at the primary level, but they lack mental health knowledge.<sup>116,117</sup> It is of utmost importance that they have sound knowledge and understanding of mental health issues, including patient's cultural perceptions of illness.<sup>45,101</sup>

It is difficult to diagnose mental health problems when cultural factors influence the clinical picture. Therefore, adequate understanding and knowledge of both cultural and Western mental health issues can assist in the accurate diagnosis and treatment.<sup>7,34,47,118-120</sup> The lack of mental health knowledge can lead to misdiagnosis and inappropriate treatment. Hweng *et al.*<sup>121</sup> reported that, in developing countries, many men, women, and children suffer from serious mental illness due to misdiagnosis at general health care facilities. Even in developed countries, such as the United States, mental health problems are more likely to go undetected and untreated in general health care facilities than in specialist services.<sup>122</sup> Sartorius<sup>123</sup> confirmed this and stated that general health care workers in developed countries "who deal with large majority of the mentally ill are often poorly trained in psychiatry and do not recognize mental disorders when they see them. The treatment provided to them who are recognized is often not adequate, leading to outcomes that discredit psychiatry and its therapeutic armamentarium".<sup>p.70</sup>

In the context of the Arab population, the lack of proper identification of mental health problems and application-appropriate treatment may be partially explained by a lack of knowledge, skill, or sensitivity to signs and symptoms of mental illness. It may also be partially explained by the presentation of somatic symptoms with underlying cultural beliefs complicating appropriate diagnosis and treatment decisions.

There are several factors likely to affect what general health workers know about mental health issues and their ability to diagnose mental health problems, particularly the amount of training they receive. There is limited time devoted to mental health during basic and postgraduate training for general health workers. Consequently, general health workers are likely to have limited knowledge of both Western and cultural mental health issues.

To ensure quality mental health care for indigenous and migrant communities, it is imperative that more culturally sensitive training be provided to general health care workers. As demonstrated with the case of PNG, the knowledge and data regarding the issue have existed for some time. Models are needed that could help provide accessibility to this knowledge for those who need it.

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## Autism: From Leo Kanner to ICD-11 and DSM-5

Abdil-Monaf Al-Jadiry and Aseel Al-Jadiri

لتوحيد، من ليو كندر لى لتصنيف الدولي لالعنصر والاهيكى لخامس

عبدالمناف الجادري، اصيل الجادري

“Donald T., brought to my clinic from Forest, Mississippi, made me aware of a behavior pattern not known to me or anyone else theretofore. When I saw a few more children presenting similar characteristics, I reported in 1943 eleven cases in some detail in a now extinct journal, The Nervous Child. This is the article so frequently cited ever since”.

Leo Kanner, 1968<sup>1</sup>

### Abstract

Autism, now called Autism Spectrum Disorder (ASD), is a neurodevelopmental disorder that presents in early life and affects both genders, all races and all regions of the globe. Since its early recognition by Leo Kanner in 1943, autism has received enormous attention from researchers, and understandable concern from parents and caregivers. However, since that year and until the present day, controversies continue around its nosology, nature, causation, diagnosis, and management. The terminology is still changing. New hypotheses are continuously developing, and yet no consensus about its management has been achieved. Advances in neuroscience and progress in genetic studies raise hopes of finding biomarkers that may explain its pathophysiology, develop more solid clinical diagnostic criteria, and provide more effective therapeutic approaches. Until such development arises, much of the current knowledge of autism remains controversial.

The current paper provides an overview covering the evolution of the nosology and other parameters of autism since its first delineation by Kanner, the founder of child psychiatry in the United States. The paper also aims to better understand how autism is recognized and defined within the many editions and revisions of the popular classification systems of mental disorders namely, the American Psychiatric Society (APA), the Diagnostic and Statistical Manual of Mental Disorder (DSM), the World Health Organization (WHO), and the International Classification of Diseases (ICD), particularly the chapters on mental, behavioral and neurodevelopmental disorders.

**Key Words:** Autism, Autistic Disorder, Autism Spectrum Disorder, Pervasive Developmental Disorder, Infantile Autism, Childhood Autism

**Conflict of Interest:** None

### Introduction

Infantile Autism, Kanner Syndrome, later known as Childhood Autism, and more recently - Autism Spectrum Disorder (ASD), is a neurodevelopmental disorder characterized by lack of interest in social interactions and reciprocity with impaired communication skills. Individuals with autism also have different presentations of stereotypic behaviors such as ritualistic acts, excessive attachment to objects, atypical play patterns and sensory sensitivities that occur before three years of age.

In 1943 Leo Kanner, an Austrian-American psychiatrist at John Hopkins University in Baltimore, Maryland, coined

the name of the disorder in a published paper entitled “Autistic Disturbances of Affective Contact”.<sup>1,2</sup> Ever since, autism has received increasing attention. Although autism is a distinct developmental disorder conventionally associated with the name of Leo Kanner, its root, as a behavioral descriptive term, may be traced back more than three decades earlier to Kanner’s publication. In 1911 a popular book was published by Eugen Bleuler, a Swiss Psychiatrist, it was entitled “Dementia Praecox” or “The Group of Schizophrenias”.<sup>3,4</sup> In his book, Bleuler described four altered mental functions, which he called the 4As: Association, Affectivity, Ambivalence, and Autism. Bleuler considered these fundamental to the diagnosis of schizophrenia. By the term autism, Bleuler

meant that the patients had no contact with the outside world; live in a world of their own; encase themselves with their desires and wishes; and, disconnect from any contact with the external world.

Controversy about autism etiology, biology and management has ignited extensive research and debate. A vast pool of scientific research and a large number of books and other publications that occupy a wide space on the medical library shelves reflect the efforts being made to understand the disorder. Like many other medical disorders, autism has no well-recognized pathophysiological, biological, neurological or genetic components to its etiology. This indeterminate characteristic has opened the door for hypothetical approaches to treatments, namely educational programs, social communication skills training, speech and other rehabilitative procedures. Autism can adversely affect the psychosocial wellbeing of families and communities supporting children with the condition and raises the need for development of community services, multidisciplinary team approaches, and support groups. Moreover, contribution from the media is needed to raise awareness for parents, families, and caregivers so they can be better signposted towards the available educational and support facilities and services in their community.

Despite scientific advances in medical technologies and neurosciences, namely molecular biology, genetics, and neuroimaging, we are still some way from being able to delineate exact biomarkers for the disorder spectrum let alone understand exactly its nature or pathophysiology. However, in recent years, research in the field and the accumulating literature has yielded significant achievements that may help clarify the obscurities surrounding autism and quiet the ongoing fierce debate about different aspects of the disorder. Families of children with autism are desperately looking for breakthroughs and hope raising scientific achievements that would help in reducing the burden they often experience and allay anxieties towards the future for their children and prospects for having more children. Finding solid biomarkers would likely assist an accurate diagnosis and pave the road for development of more specific and effective therapies and prophylactic measures.

The aim of the current paper is to present a comprehensive overview of ASD as a distinct neurodevelopmental disorder; follow the evolution of its nosology; present some epidemiological data and pattern of prevalence; provide an update on diagnostic issues, neural, genetic and biological biomarker; and review the most recent recommendations and expert panel approaches to therapeutic interventions.

## **Recognition of autism as a distinct disorder**

Before 1943, the year that witnessed for the first time the recognition of infantile autism by Leo Kanner, children with autism were depicted as having intellectual disability “previously known as mental retardation”, schizophrenia, schizophrenic prodrome, or early onset schizophrenia. However, in 1938, a 33-page letter by a father of 5-year child “Donald T.” addressed to Leo Kanner opened the door for the delineation of autism as a distinct developmental disorder. Donald T. was the first in a list of 11 children seen by Kanner between 1938-1942, that formed the matrix for his published paper *Autistic Disturbances of Affective Contact*.<sup>1,2</sup> Owing to the historical importance created by the letter from Donald’s father, it would be useful to quote some of the statements from it:

- Donald was different from his brother and not like other children.
- At birth, he was healthy, with his only complication being eating. He has never shown a normal appetite.
- From early age he demonstrated an unusual memory for face and names and could hum and sing many tunes accurately, able to memorize phrases that rhymed or were of similar nature.
- He was happiest when left alone, neither paying attention to anyone in the room nor reacting to the absence or homecoming of his mother or father.
- He enjoyed spinning round objects, such as pans and spinning blocks, but he was afraid of self-propelling vehicles, like tricycles and swings.
- Donald had erupted into destructive, terrible tantrums when he was disrupted.<sup>1,2</sup>

When Donald T. was interviewed, Kanner observed the following:

- Donald was shaking his head from side-to-side, repeating the same three-note tune, spinning anything he could get his hands on, and organizing objects by color, much to his own merriment.
- Most of Donald’s actions were repetitious, carried out in exactly the same way in which they had been performed originally. Often, he would utter random words or phrases, and this formed much of his verbal output and speech.
- Donald had a problem with language, namely his understanding of the meaning of words. Words had a “literal, inflexible meaning” to Donald, and he was unable to recognize and apply the denotation of a word to another context; each word had a definite, designated definition and association in his mind.

- For the most part, conversations with Donald consisted of a barrage of questions.
- The relationship Donald had with others was of a nature insofar as when he needed or wanted to know about something.<sup>1,2</sup>

The 11 children presented by Kanner were “highly intelligent”, but displayed a “powerful desire for being alone and an obsessive insistence on persistent sameness”.

Based on these observations, Kanner did not consider “Infantile Autism” an early form or prodrome of schizophrenia. The clinical signs were not identical and, unlike schizophrenia, Kanner’s patients seemed to have autism from birth.

### **Autism and related disorders**

Kanner’s recognition of autism as a distinct disorder raised universal interest. Other disorders associated with developmental regression, impairment of interpersonal communication and repetitive behaviors were confused or debated as autism; among these were Childhood Disintegrative Disorder, Asperger’s Disorder and Rett Disorder.

#### ***Childhood Disintegrative Disorder (CDD)***

“Dementia Infantilis” was the name originally coined by the Austrian psychiatrist Theodor Heller in 1908 to the disorder now called Childhood Disintegrative Disorder (CDD).<sup>5</sup> This diagnosis requires that a normally developing child over two years of age undergo a severe and mostly irreversible regression of developmental gains, including speech, sociability and self-help skills. Despite significant changes in classification systems since 1908, the clinical features of CDD continue to be the same in DSM-IV, where it was introduced for the first time, then in DSM 5.<sup>6,7</sup> There is controversy in the autism field about whether Childhood Disintegrative Disorder really is a distinct entity, worthy of its own diagnostic category. DSM 5 subsumed CDD into the Autism Spectrum Disorders category. However, it has been unclear whether individuals with CDD have a late-onset or regressive form of autism, or whether this diagnostic category captures a truly distinct condition that affects certain children. To examine this, Volkmar and Cohen (1989) compared a group of children with CDD, diagnosed using the International Classification of Diseases (ICD-10) criteria, to a group of children who were diagnosed with autism after two years of age. They found that the children with CDD had accumulated more skills than the children with autism accumulate prior to regression and had worse speech and intellectual disabilities subsequent to it. From this, they concluded that CDD merits a separate diagnosis

from late-onset autism.<sup>5,8</sup> Subsequent studies supported these findings.

#### ***Asperger Disorder***

In 1944, one year after Kanner’s paper, Hans Asperger, an Austrian pediatrician, published a paper about four children with autism who seemed to have high non-verbal intelligence quotients and who used a large vocabulary appropriately. The children had significant difficulties in social interaction and non-verbal communication, along with restricted and repetitive patterns of behavior and interests.<sup>9</sup> Asperger called the condition “autistic psychopathy”, also later named Asperger disorder (AD), Asperger’s, schizoid disorder of childhood, autistic psychopathy, or high functioning autism.<sup>9,10</sup> Lora Wing used the term “Asperger syndrome” in 1976 and popularized it to the English-speaking medical community in her February 1981 publication of a series of case studies of children showing similar symptoms.<sup>11-14</sup> Signs of AD usually begin before two years of age and typically last for a person’s entire life. Most children improve as they grow up, but social and communication difficulties usually persist. It became a standard diagnosis in 1992, when it was included in the 10<sup>th</sup> edition of the World Health Organization’s (WHO) diagnostic manual, International Classification of Diseases (ICD-10).<sup>10</sup> In 1994, it was added to the 4<sup>th</sup> edition of the American Psychiatric Association’s (APA), Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).<sup>6</sup> Whether it should be seen as a distinct form of high-functioning autism is a fundamental issue requiring further study. There are questions about the empirical validation of the DSM-IV and ICD-10 criteria.<sup>15</sup> In 2013, the DSM 5 amended AD from being a separate diagnosis forming part of an autism spectrum classified by degree of severity.<sup>16</sup> However, confusion remains about the distinction between AD and high-functioning autism.

#### ***Rett’s Syndrome***

Rett’s syndrome is another disorder that displays some of the regressive developmental signs of autism, but was later found to be a distinct genetic brain disease typically appearing between 6-18 months of age and almost exclusively in girls.<sup>16</sup> Andreas Rett, a pediatrician in Vienna, first described the condition in 1966.<sup>17</sup> Rett initially called this syndrome Cerebroatrophic Hyperammonemia, but the elevated ammonia levels in the bloodstream were later found to be only rarely associated with the condition.

As his writings were in German, they did not become widely known in the English-speaking world.<sup>18</sup> Symptoms of Rett’s include problems with language, coordination,

and repetitive movements.<sup>19</sup> Often there is slower growth, problems with walking, and a small head size. Rett’s Syndrome can include seizures, scoliosis, and sleeping problems.<sup>19</sup> Those affected can be so by different degrees.<sup>19</sup> In 1999, Bengt Hagberg, a Swedish pediatrician, and Lebanese-American physician, Huda Zoghbi, discovered the mutation of the MECP2 gene that causes the condition.<sup>18,19</sup> This gene is located on the X chromosome.<sup>18</sup> Typically it develops as a new mutation, with less than 1% of cases being inherited from a person's parents.<sup>19,20</sup> It occurs almost exclusively in girls.<sup>21</sup> Boys who have a similar mutation typically die shortly after birth.<sup>21</sup> Diagnosis is based on symptoms and can be confirmed with genetic testing.<sup>21</sup> In the DSM-IV, Rett’s Syndrome is listed as one of five autism-related conditions along with Asperger Syndrome and Childhood Disintegrative Disorder. Rett’s Syndrome was removed from DSM-5 because the severe features of autism are only present within a very narrow timeframe in the life of the child. Children with the disorder often regain interest in socializing as they get older.

**Autism in DSM editions**

The first inclusion of autism in the American Psychiatric Association manuals - Diagnostic and Statistical Manuals (DSM) was in the second edition (DSM-II), published in 1952.<sup>22</sup> It defined autism as a form of childhood schizophrenia marked by a detachment from reality. Cold unemotional mothers, termed “refrigerator mothers”, were blamed for its occurrence. However, the refrigerator mother hypothesis was disproven in the 1970s when the literature started to highlight specific biological and brain development issues related to autism etiology. The DSM-III, published in 1980, established autism as a separate diagnosis and labeled it as a Pervasive Developmental Disorder distinct from schizophrenia.<sup>23</sup> The DSM-III listed specific criteria required for a diagnosis. It defined three essential features of autism: a lack of interest in people, severe impairments in communication and bizarre responses to the environment; all of which developed in the first 30 months of life. In 1987, the revised DSM-III (DSM-III-R) broadened the concept of diagnostic criteria of autism and added a new category called Pervasive Developmental Disorder-Not Otherwise Specified (PDD-

NOS). The new classification removed the requirement for onset before 30 months.<sup>24</sup> This clarification from the revised edition of DSM-III indicated that autism is not a single disorder, but rather a spectrum of disorders that can occur any time in the life of individuals. Further, the revised edition listed 16 criteria across the three previously established domains, eight of which had to be met for a diagnosis. Adding PDD-NOS allowed clinicians to include children who didn’t fully meet the criteria for autism, but still required developmental or behavioral support. Delineation of autism as a spectrum disorder was agreed, for the first time officially, in the 1994 edition of the DSM-IV as well as in its revision DSM-IV-R in the year 2000.<sup>25</sup> These editions included five distinct disorders: Autistic Disorder, Asperger’s Disorder, Childhood Disintegrative Disorder, Rett’s Syndrome, and Pervasive Developmental Disorder - Not Otherwise Specified. The prevailing belief then was that each of the five disorders has a distinct genetic background. In 2003, the Human Genome Project was established, and hundreds of genes were identified, but none were exclusively linked to autism.<sup>26</sup> This justified the conceptualization of autism as a dimensional disorder, ranging from mild to severe, rather than as a distinct disorder. The most recent edition of the APA manual, DSM-5, which was published in 2013, adopted the dimensional approach that recognized autism as Autism Spectrum Disorder (ASD). The DSM-5 included a new diagnostic entity termed Social Communication Disorder for children with only language and social impairments. The same edition removed AD, PDD-NOS, Rett’s syndrome and CDD from the list. DSM-5 diagnostic criteria for autism include two groups of features: “persistent impairment in reciprocal social communication and interaction” and “restricted, repetitive patterns of behavior”, both present in early childhood. Each group includes specific behaviors. The new dimensional approach to autism created concern amongst families and caregivers of children, previously diagnosed with the removed disorders. Subsequent concerns regarding the impact of diagnostic changes on their lives in terms of loss of services or insurance coverage are not clearly documented as yet and vary from being unchanged to being noticeably reduced in some countries

**Table 1.** Autism diagnoses and subtypes in DSM editions

DSM Edition	Year	Diagnosis & Subtype
II	1968	Schizophrenia - Childhood type
III	1980	Pervasive Developmental Disorders - Infantile autism - Childhood onset pervasive developmental disorder
III-R	1987	Pervasive Developmental Disorders

		<ul style="list-style-type: none"> <li>- Autistic disorder</li> <li>- Pervasive developmental disorder NOS</li> </ul>
IV	1994	Pervasive Developmental Disorders <ul style="list-style-type: none"> <li>- Autistic disorder</li> <li>- Asperger’s disorder</li> <li>- Pervasive developmental disorder NOS</li> <li>- Childhood disintegrative disorder</li> <li>- Rett’s disorder</li> </ul>
5	2013	Autism Spectrum Disorder

### Autism in ICD revisions

In 1967, the 8<sup>th</sup> revision of the World Health Organization (WHO) - International Classification of Diseases system (ICD-8) recognized autism as a distinct diagnostic category for the first time.<sup>27</sup> ICD-8 listed Infantile Autism under the schizophrenia grouping. In 1977, the ICD-9 specified Infantile Autism, Disintegrative Psychosis, Other and Unspecified under the grouping “psychoses with origin specific to childhood”.<sup>28</sup> In 1993, the ICD-10 was published and applied Pervasive Developmental Disorders to childhood autism, Asperger’s Syndrome, atypical autism, other Pervasive Developmental Disorder, unspecified, other Childhood Disintegrative Disorder, Rett’s Syndrome, and overactive disorder with mental

retardation and stereotyped movements.<sup>29</sup> Chapter 6 of the ICD-11, which was released in May 2019 and is the most recent version, coded Autism Specific Disorder within block L1-6A0 (neurodevelopmental disorders) to include Autistic Disorder and Pervasive Developmental Delay.<sup>30</sup> It specified eight subtypes. The diagnostic criteria mirrored those of ASD in DSM-5. Unlike DSM-5, the ICD-11 lists identifying features and lets clinicians decide whether an individual’s traits match up, and it sets broader and less culturally specific criteria. Moreover, the ICD-11 makes a distinction between autism with and without intellectual disability, and highlights the fact that older individuals and women sometimes mask their autism traits.

**Table 2.** Autism diagnoses and subtypes in ICD-revisions

ICD-Revision	Year	Diagnosis & Subtype
8	1967	Schizophrenia <ul style="list-style-type: none"> <li>• Infantile autism</li> </ul>
9	1977	Psychoses with origin specific to childhood <ul style="list-style-type: none"> <li>• Infantile autism</li> <li>• Disintegrative psychosis</li> <li>• Other</li> <li>• Unspecified</li> </ul>
10	1993	Pervasive Developmental Disorders <ul style="list-style-type: none"> <li>• Childhood autism</li> <li>• Asperger’s disorder</li> <li>• Atypical autism</li> <li>• Other pervasive developmental disorder</li> <li>• Other childhood disintegrative disorder</li> <li>• Rett’s syndrome</li> <li>• Overactive disorder with mental retardation and stereotyped movements</li> </ul>
11	2019	Autism Spectrum Disorder (ASD) <ul style="list-style-type: none"> <li>• ASD without disorder of intellectual development and with mild or no impairment of functional language</li> <li>• ASD with disorder of intellectual development and with mild or no impairment of functional language</li> </ul>

	<ul style="list-style-type: none"> <li>• ASD without disorder of intellectual development and with impaired functional language</li> <li>• ASD with disorder of intellectual development and with impaired functional language</li> <li>• ASD without disorder of intellectual development and with absence of functional language</li> <li>• ASD with disorder of intellectual development and with absence of functional language</li> </ul>
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## Epidemiology of Autism

The World Health Organization (WHO) estimates that, worldwide, 1 in 160 children have autism. This estimate represents an average figure and reported prevalence varies substantially across studies.<sup>31</sup> Some well-controlled studies have, however, reported that children with autism and related conditions are between 10-15 people per 10,000 populations worldwide. In a population-based study of all 7 to 12-year old children (N = 55,266) in a South Korean community, Kim *et al.* estimated that the prevalence of autism spectrum disorders was 2.64%.<sup>32</sup> The literature in the last two decades reports a multifold increase in prevalence rates of autism globally. While in 1943, Kanner at John Hopkins University, Baltimore, diagnosed<sup>11</sup> cases of Infantile Autism across a five year period from 1938-1942.<sup>1</sup> In 2018, the US Center for Disease Control (CDC) presented data from 2014, which was based on the Disabilities Monitoring (ADDM) Network surveillance system that was carried out in 11 states. An overall prevalence of ASD was reported in 16.8 per 1,000 (1 in 59) children aged eight years (1 in 37 boys and 1 in 151 girls).<sup>33</sup> According to information in the National Survey of Children's Health taken from parents across the US, 1 in 40 children (2.5%) has autism, representing an estimated 1.5 million children age 3 to 17 years.<sup>34</sup> A systemic review of the epidemiology of autism in Arab Gulf countries<sup>35</sup> reported prevalence of autism to be 1.4 per 10,000 in Oman,<sup>36</sup> 29 per 10,000 for PDD in UAE<sup>37</sup> and 4.3 per 10,000 in Bahrain.<sup>38</sup> Prevalence of autism among children with developmental disorders in Egypt and Tunisia were documented to be 33.6% and 11.5%, respectively.<sup>39</sup> The prevalence figures are high when compared against the earlier finding by Lotter who documented a prevalence of 9 in 1,312 (approximately 0.7%) among children with intellectual disability in Africa.<sup>40</sup> Based on epidemiological studies conducted over the past 50 years, the prevalence of autism appears to be increasing globally. The WHO states many possible explanations for this apparent increase, including improved awareness, expansion of diagnostic criteria, better diagnostic tools and improved reporting.<sup>31</sup> Increase in prevalence may also be attributed to the variable diagnostic criteria applied, spectrum of autism categories

included, sample selection such as age range, better identification of cases, and increased awareness of autism among families. Studies in Japan report much higher rates than found in other countries.<sup>41</sup> Japanese investigators suggest that these findings reflect the careful evaluations performed by Japanese clinicians, which may identify cases that would be overlooked in other countries. Alternatively, autism may be more common in Japan because of gastrointestinal and other infections transmitted through the ingestion of seafood and other aquatically derived foods that are characteristic of the Japanese diet.

## Diagnosis of autism

In order for children with autism to be identified early in life, it is recommended that all should be screened early during infancy. This would allow suspected cases to be referred for more detailed evaluation to confirm the diagnosis. Regular screening of infants and toddlers for symptoms and signs of autistic disorder is crucial because it allows for early referral of patients for further evaluation and referral for early therapeutic interventions. Siblings of children with autism are at risk of developing traits of autism and even a full-blown diagnosis of autism. Therefore, siblings should also undergo screening not only for autism-related symptoms, but also for language delays, learning difficulties, social problems, and anxiety or depressive symptoms.<sup>42</sup> The American Academy of Pediatrics guidelines indicates that all children should be screened for autism starting from the age of 18 months with repeated screening at 24 and 30 months. The Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R/F; Robins, Fein, & Barton, 2009) is a 2-stage parent report screening tool commonly used to assess risk for ASD. The M-CHAT-R/F is available as a free download for clinical, research, and educational purposes.<sup>103</sup> (Appendix 1) According to the DSM-5, autism encompasses Asperger's disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified.<sup>7</sup> The diagnostic criteria of DSM-5 for autism include two groups of characteristic symptoms:

- Deficits in social communication and social interaction.

- Restricted repetitive behaviors, interests, and activities (RRBs).

These symptoms are present from early childhood and limit or impair everyday functioning. Both components are required for diagnosis of autism. Examination for patients with suspected autism may include the following findings: abnormal motor movements (e.g. clumsiness, awkward walk, hand flapping, tics), dermatologic anomalies (e.g. aberrant palmar creases), abnormal head circumference (e.g. small at birth, increased from age 6 months to 2 years, normal in adolescence), orofacial, extremity, and head/trunk stereotypies (e.g. purposeless, repetitive, patterned motions, postures, and sounds), self-injurious behaviors (e.g. skin picking, self-biting, head punching/slapping), physical abuse inflicted by others (e.g. parents, teachers), and sexual abuse. According to statistics reported by the advocacy group Autism Speaks, developmental regression, or loss of skills, such as language and social interests, affects around 1 in 5 children who will go on to be diagnosed with autism and typically occurs between ages 1 and 3 years. An estimated third of people with autism are nonverbal, 31% of children with autism have an intellectual disability (intelligence quotient [IQ] <70) with significant challenges in their daily functioning and with 25% in the borderline range (IQ 71–85). Nearly half of those with autism wander or bolt from safety; two-thirds children with autism between the ages of 6 and 15 have been bullied. Nearly 28% of 8-year old children with autism have self-injurious behaviors such as head banging, arm biting and skin scratching being among the most common behaviors. Drowning remains a leading cause of death for children with autism and accounts for approximately 90% of deaths associated with wandering or bolting by those age 14 years and younger.<sup>43</sup> With regard to investigations required to complete the evaluation, no specific blood tests are available so far. However, several metabolic abnormalities have been identified in investigations of people with autism (e.g. elevated 5-HT, reduced serum Biotinidase, abnormal neurotransmitter functions, impaired phenolic amines metabolism), but such a metabolic workup should be considered on an individual basis. Until present, no diagnostic biologic markers for autism currently exist. Other studies that may be helpful in the evaluation of autistic disorder include EEG, neuropsychological assessment, and polysomnography to identify sleep disorders and to demonstrate seizure discharges. Further, there is no clinical evidence to support the role of routine clinical neuroimaging in the diagnostic evaluation of autism, even in the presence of megaloccephaly.<sup>42</sup> Although characteristic abnormalities have been identified, no single finding is diagnostic. Currently imaging techniques such as MRI, CT scanning,

PET scanning, and SPECT scanning have yielded inconsistent results in evaluating autism. It would be pertinent to mention that the diagnostic criteria for autistic disorders, suggested by the many DSM editions and the ICD revisions, have substantiated Kanner's diagnostic criteria with the exception that these were reduced from three to two and that the diagnosis could be made at any age in early childhood later rather than limited to before a child reaches 3 years of age.

### **Associated medical and mental health conditions**

According to data from the advocacy group Autism Speaks:

- Autism can affect the whole body.
- Attention Deficient Hyperactivity Disorder (ADHD) affects an estimated 30 to 61 percent of children with autism.
- More than half of children with autism have one or more chronic sleep problems.
- Anxiety disorders affect an estimated 11 to 40 percent of children and teens on the autism spectrum.
- Depression affects an estimated 7% of children and 26% of adults with autism.
- Children with autism are nearly eight times more likely to suffer from one or more chronic gastrointestinal disorders than are other children.
- As many as one-third of people with autism have epilepsy (seizure disorder).
- Studies suggest that schizophrenia affects between 4 and 35 percent of adults with autism. By contrast, schizophrenia affects an estimated 1.1 percent of the general population.
- Autism-associated health problems extend across the life span – from young children to senior citizens. Nearly a third (32%) of 2-5 years old children with autism are overweight and (16%) are obese. By contrast, less than a quarter (23%) of 2-5 years old children in the general population are overweight and only (10%) are medically obese.<sup>44</sup>

### **Pathophysiology and etiology**

In the case of disorders without a well-delineated pathophysiology or established etiology, it is not unusual for multiple tentative or anecdotal hypotheses to be reported in the literature that describe pathophysiological mechanisms or offer etiological factors. In the context of autistic disorders, no specific or pathognomonic etiological factors have been determined yet. Therefore,

since the identification of Infantile Autism by Kanner in the first half of the 20<sup>th</sup> Century, several hypotheses have been introduced ranging from psychological ones to neuroanatomical and other biological factors, yet none of the suggested factors are evidence based. Most hypotheses attribute etiology to genetic abnormalities, obstetric complications, exposure to toxic agents, and prenatal, perinatal, and postnatal infections.<sup>45-48</sup> The initial clinical descriptions of autism and - until the 60's - of the previous century, attributed the disorder to cold, rejecting parents, e.g. "refrigerator mothers"; however, careful study of children with autism and their parents has disproved this hypothesis. Autism is neither caused by a lack of warmth and affection in parents nor by any other emotional or psychological parental deficits.

In the 1990's, autism was linked with vaccinations; specifically, the MMR vaccine for measles, mumps, and rubella. This claim was not supported by broader research.<sup>13,49</sup> Research from the CDC indicates that the number of childhood vaccines administered, either in a single day or during a child's first two years of life have no effect on the risk of developing autism. According to results of a case-control study of more than 1000 children born between January 1994 and December 1999, exposure to antibody-stimulating proteins or polysaccharides from vaccines between the ages of three months and two years was not associated with an increased risk of developing autism. The study included 256 children with autism and 752 healthy controls.<sup>14,15,50,51</sup> Therefore, parents should be encouraged to fully immunize their children.<sup>16,52</sup>

Regarding the risk associated with parents' ages, meta-analyses have confirmed that the risk of autism in offspring increases with the advancing age of either parent. One study reported that, after controlling for paternal age, the adjusted relative risk for autism was 1.52 in the offspring of mothers aged 35 years or older compared with mothers aged 25-29 years.<sup>64,53</sup> Another study found that, after controlling for maternal age, offspring of men aged 50 years or older were 2.2 times more likely to have autism than offspring of men aged 29 years or younger.<sup>65,54</sup>

According to research findings, parental viral infection has been called the principal non-genetic cause of autism. Rubella in pregnant women was associated with increased risk for autism in the offspring.<sup>12,55,56</sup> Studies showed that maternal use of valproates, or Selective Serotonin Reuptake Inhibitors (SSRIs) during pregnancy was associated with increased risk for autism.<sup>41-43,57-59</sup> More over research found that severe gestational hypothyroxinemia early in pregnancy was associated with increased risk for autism by almost fourfold.<sup>44,45,60,61</sup> Other researchers investigated the association of immunological factors with autism, and have identified abnormalities

such as decreased plasma concentrations of the C4B complement protein in people with autism. Such abnormalities may be the source of increased susceptibility to infection seen in some people with autism.

## **Diet and autism**

Some nutritional elements in diet have been implicated in the causation of autism and other elements are claimed to have improved the course and outcome of autism; however, research in this area has not been conclusive and the issue remains controversial. According to research, symptoms of autistic disorders are possibly aggravated by the consumption of dairy products, chocolates, corn, sugar, apples, and bananas; however, none of the large population studies have confirmed this. Conversely, some anecdotal information suggests that gluten and casein-free diets can help some children with autism.<sup>32,62</sup> Test findings suggest that low-functioning children with autism may have impairment in the metabolism of phenolic amines.<sup>33,63</sup>

Compared with children who do not have autism, children with autism have decrements in plasma levels of cysteine, glutathione, methionine, ratio of S-Adenosyl-L-Methionine to S-Adenosyl-L-Homocysteine, and the ratio of reduced to Oxidized Glutathione.<sup>34,64</sup> Evidence for Hyperlacticacidemia and Carnitine deficiency that reflect disturbed neuronal energy metabolism was also reported.<sup>35,36,65,66</sup>

## **Role of neurobiological factors**

Most biological hypotheses presently focus on the neuro-anatomic and neuroimaging studies of the brains of patients with autism in comparison with the brains of those without autism. These studies revealed abnormalities of cellular configurations in several regions of the brain, including the frontal and temporal lobes, and the cerebellum. Enlargements of the amygdala and the hippocampus are common in childhood. Markedly more neurons are present in select divisions of the prefrontal cortex of autopsy specimens of some children with autism, compared with those without autism.<sup>20,67</sup> Magnetic resonance imaging (MRI) studies have suggested evidence for differences in neuroanatomy and connectivity in people with autism compared with control groups of people without autism. Specifically, these studies have found reduced or atypical connectivity in the frontal brain region, as well as thinning of the corpus callosum in children and adults with autism and related conditions. In a study that included 17 adults with high-functioning autism and 17 age and IQ-matched controls,

functional magnetic resonance imaging (fMRI) of the brain that showed neural representations of social interactions was able to accurately identify individuals with autism. Scans were performed as study participants thought about a set of social interaction verbs from both an action and a recipient perspective.<sup>21,22,68,69</sup> Some of the regional differences in neuroanatomy correlate significantly with the severity of specific autistic symptoms; for example, social and language deficits of people with autism likely are related to dysfunction of the frontal and temporal lobes.<sup>23-25,70-72</sup>

On MRI scans, the brains of children with autism demonstrate greater myelination in the bilateral medial frontal cortices and less myelination in the left temporoparietal junction.<sup>28,73</sup> Similarly, region-specific differences in the concentrations of gray matter, made up of neuronal cell bodies, dendrites, unmyelinated axons and glial cells, are also found in the brains of people with autism.<sup>29,74</sup>

In postmortem studies of the brains of 11 children with autism and 11 unaffected controls, researchers found focal patches of disruption of cortical laminar architecture in the frontal and temporal cortexes in 10 of the children with autism and one of the controls, suggesting that brain irregularities in autism may have prenatal origins. It is well known that the frontal and temporal lobes are involved in social, emotional, communication, and language functions. Since the changes were in the form of patches, the researchers believe that early treatment could rewire the brain and improve autism symptoms.<sup>26,27,75,76</sup>

Elevations of blood serotonin levels occur in approximately one third of individuals with autistic disorder, and this is reported in the parents and siblings of patients. Functional anomalies in other brain neurotransmitter systems, e.g. acetylcholine, glutamate, have also been identified in some people with autism.<sup>25,31,72,77</sup> Serum Biotinidase is reduced in some people with autistic disorder. This enzyme is required for the use and recycling of the B vitamin biotin. Deficiency of biotin has been linked with behavioral disorders.

## **Environmental factors**

In the past decade, the number of epidemiological publications addressing environmental chemical exposures and autism has grown tremendously. These studies proved the important role played by environmental factors in causation of autism. So far, evidence suggests that some criteria air pollutants - for example, Carbon Monoxide, lead, ground-level ozone, particulate matter, Nitrogen Dioxide, and Sulfur; and, some metals, several pesticides, and some volatile organic compounds - for

example, methylene chloride, trichloroethylene; and styrene and phthalates - for example, esters of phthalic acid, substances added to plastics to increase their flexibilities and transparency, durability and longevity, may all be linked to autism. An association between exposure to the Organochlorine pesticides, Dicofol and Endosulfan during the first trimester of pregnancy and the subsequent development of autism in children had been reported.<sup>60,61,78,79</sup> These associations have emerged despite difficulties of study in this area, most notably the error in accurately measuring exposure concentrations and obtaining sufficient sample sizes. Studies that examine exposures by developmental time suggest that not all windows are equal. Although evidence for a discrete developmental window of susceptibility for autism is in its early stages, results shown here suggest that early pregnancy may be a period of susceptibility to pesticides, whereas later pregnancy may be a period of susceptibility to criteria air pollutants. Different critical windows for different exposures is not unexpected given the various biological activities of environmental chemicals and the many, interwoven events of neurodevelopment, taking place during pregnancy and postnatal life, which, if disrupted, could manifest in autism symptoms.<sup>80</sup>

## **The role of genetic factor**

Research indicates that hereditary factor is involved in the vast majority of cases. The rate of autism in children born into families that already have a child with autism is as high as 18.7 %, and the risk is twice as high in children born to families with two or more children with autism.<sup>46,81</sup> Girls born to a family that has a child with autism have 2.8 times the risk of having such a disorder.<sup>46,81</sup> Multiple family studies have suggested genetic components in many cases of autism.<sup>40,50,51,82-84</sup> Twin studies have demonstrated a moderate degree of genetic heritability for autism.<sup>47-49,85-87</sup> While a third of monozygotic twins are concordant for autism, dizygotic twins are concordant for autism at rates of 4-8% which is comparable to siblings.<sup>53,88</sup> Factor analyses of datasets from the Autism Genome Project have suggested linkage of a joint attention factor with 11q23 and of a repetitive sensory-motor behavior factor with 19q13.<sup>52-89</sup> A focused neurogenetic evaluation of children with autism yields a genetic disorder in two fifths of the children.<sup>54,90</sup> For example, mutations in the gene SHANK3 are associated with autism.<sup>55,91</sup>

In terms of association with other heredity disorders, studies have shown association of autism with Fragile X syndrome and tuberous sclerosis.<sup>56-59,92,93</sup>

## **Management of autism**

There is no cure for autism, but various interventions diminish the symptoms, sometimes profoundly. Since both social and communication challenges are part of the autism diagnosis, behavioral and speech language therapy typically comprise the basis of a treatment plan.

Early intervention affords the best opportunity to support healthy development and deliver benefits across the lifespan. Early intervention can improve learning, communication and social skills, as well as underlying brain development. However no single educational plan works for all children.

Treatment for particular symptoms, such as speech therapy for language delays, often does not need to wait for a formal autism diagnosis. While early intervention is extremely important, intervention at any age can be helpful. Research shows that early intervention treatment services can greatly improve a child's development.<sup>1,2,94,95</sup> Early intervention services help children from birth to three years old learn important skills. Services include therapy to help the child talk, walk, and interact with others. In the United States, in any state, the Individuals with Disabilities Education Act (IDEA) recommends that children under the age of three years who are at risk of having developmental delays may be eligible for services provided through an early intervention system.

### **Behavior and communication approaches**

According to reports by the American Academy of Pediatrics and the National Research Council, behavior and communication approaches that help children with autism are those that provide structure, direction, and organization for the child in addition to family participation. These approaches include:

#### ***Applied Behavior Analysis (ABA)***

A notable treatment approach for people with autism is called Applied Behavior Analysis (ABA). ABA is composed of techniques based upon the principles of behavior therapy to change behavior of social significance.<sup>94</sup> ABA and therapies based on its principles are the most researched and commonly used behavioral interventions for autism. ABA has become widely accepted among health care professionals and used in many schools and treatment clinics. ABA encourages positive behaviors and discourages negative behaviors in order to improve a variety of skills. The child's progress is tracked and measured.

The name "applied behavior analysis" has replaced behavior modification because the latter approach suggested attempting to change behavior without clarifying the relevant behavior-environment interactions. In contrast, ABA tries to change behavior by first

assessing the functional relationship between a targeted behavior and the environment.<sup>3</sup> Further, the approach often seeks to develop socially acceptable alternatives for aberrant behaviors.<sup>2-4,95-97</sup>

#### ***ABA includes many approaches***

- Discrete Trial Training (DTT) is a style of teaching that uses a series of trials to teach each step of a desired behavior or response. Lessons are broken down into their simplest parts and positive reinforcement is used to reward correct answers and behaviors. Incorrect answers are ignored.
- Early Intensive Behavioral Intervention (EIBI) is a type of ABA for very young children with autism, usually younger than four. EIBI is a treatment based on the principles of applied behavior analysis. Delivered for multiple years at an intensity of 20 to 40 hours per week, it is one of the well-established treatments for autism.
- Pivotal Response Training (PRT) aims to increase a child's motivation to learn, monitor his own behavior, and initiate communication with others. Positive changes in these behaviors should have widespread effects on other behaviors.
- Verbal Behavior Intervention (VBI) is a type of ABA that focuses on teaching verbal skills.

Other therapies that can be part of a complete treatment program for a child with autism include:

- Developmental, Individual Differences, Relationship-Based Approach (DIR), which is also called "Floor Time". With this therapy, a therapist and parents engage children through activities each child enjoys. It relies on a child having the motivation to engage and interact with others. The therapist follows a child's lead in working on new skills. DIR is a developmental model for assessing and understanding any child's strengths and weaknesses. It has become particularly effective at identifying the unique developmental profiles and developing programs for children experiencing developmental delays due to autism or other developmental disorders. Floor Time focuses on emotional and relational development (feelings, relationships with caregivers). It also focuses on how the child deals with sights, sounds, and smells. Floor Time is a relationship-based therapy for children with autism. This intervention is called Floor Time because the parent gets down on the floor with the child to play and interact with the child

at their level. Floor Time is an alternative to ABA and is sometimes used in combination with ABA therapies. It was developed by Stanley Greenspan and first outlined in 1979 in his book *Intelligence and Adaptation*.<sup>1,98</sup> Evidence for the efficacy of DIR/Floor Time includes results from randomized controlled trials of DIR/Floor Time and the DIR/Floor Time-based P.L.A.Y. Project.<sup>2,99</sup> Because of various limitations in these studies, the existing evidence is deemed to "weakly support" the efficacy of Floor time.

The P.L.A.Y. Project (Play & Language for Autistic Youngsters) is an evidence-based developmental intervention for families of young children with autism. The P.L.A.Y. Project is the pragmatic application of the theory of DIR/Floor Time and emphasizes the importance of helping parents become their child's best PLAY partner.<sup>3,101</sup>

- Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) uses visual cues to teach skills. For example, picture cards can help teach a child how to get dressed by breaking information down into small steps.
- Occupational Therapy teaches skills that help the person live as independently as possible. Skills might include dressing, eating, bathing, and relating to people.
- Sensory Integration Therapy helps the person deal with sensory information, like sights, sounds, and smells. Sensory Integration Therapy could help a child who is bothered by certain sounds or does not like to be touched.
- Speech Therapy helps to improve the person's communication skills. Some people are able to learn verbal communication skills. For others, using gestures or picture boards is more realistic.
- The Picture Exchange Communication System (PECS) uses picture symbols to teach communication skills. The person is taught to use picture symbols to ask and answer questions and have a conversation.

### **Medication uses in autism**

There are no medications that can cure autism or even treat the main symptoms. There are medications that can help some people with related symptoms. For example, medication might help manage high energy levels, inability to focus, depression, or seizures. Risperdal and Aripiprazole are the only FDA-approved medications for autism-associated agitation and irritability.

### **Role of complementary and alternative medicine (CAM)**

CAM is the term for medical products and practices that are not part of standard medical care. In view of absence of curative therapies for autism, parents try any sort of alternative means, even those of unproven efficacy, to reduce their children's ailment. To relieve the symptoms of autism, some parents and health care professionals use treatments that are not evidence based outside of what is typically recommended by the pediatrician. CAM for autism includes special diets, chelation, biological (e.g. secretin), or body-based systems (like deep pressure).<sup>1,101</sup> These types of treatments are very controversial. Current research shows that as many as one third of parents of children with autism may have tried complementary or alternative medicine treatments, and up to 10% may be using a potentially dangerous treatment.<sup>2,102</sup>

### **Conclusion**

Despite extensive research, the dilemma of autism has not been solved. Improvement in research methodology, advances in neurosciences and genetic studies, and diagnostic instruments has significantly contributed to better understanding of the problem as a neurodevelopmental condition present from birth; yet no solid undermining diagnostic biomarker has been found. Currently better therapies are available, but none ensure the possibility of cure. Effective communication and behavioral therapies form the substrate for the available treatment. However, the progress achieved so far raises hope for finding better therapeutic and prophylactic means in future.

### **Recommendations**

Families with children affected by autism should have any other of their children screened early even if they apparently do not appear to have the associated symptoms. This offers a better opportunity for early identification and intervention.

More care should be provided for pregnant women in the perinatal period to avoid exposing their offspring to adversities during intrauterine life, childbirth and infancy.

Appropriate care should be offered to children, even those with suspected diagnosis of autism, to ensure early intervention.

Raising awareness and educational programs ought to be encouraged and offered to families.

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## المخلص

داء التوحد، ويدعى عموماً بالذات من الحاضر "حيف داء التوحد" هو أحد اضطرابات نمو الدماغ التي تزيد من التعقيد في الاعراض في الغالب في اليربين الأولى من عمر الشخص المصاب. حيث يصيب الأفراد من الجنسين ولا يميز بين عرق أو مذهب أو من مميزات الام عورة. وأول من توصل الى تشخيصه هو الطبيب النفسي الأمريكي اللين اوي الأنزل ليونكلر وهو مؤسس طب نفس الطفل وشرر اكتشافه بمقاله في عام ١٩٤٣ افسى مجله طبي بمقالة الأملية في دكتور لك جذوة للبحث في حصوله الى التشخيص والتعرف على لفق هه الداء ومبببته ومرضته ومخاتنتش مخصه وعلاجه وكذا اكتشافه لوقى لطفل اليعلى لوقتاً بين عرقه ومقدمي الخدمات. وفي ذلك العام والى يومنا هذا كانت در النظريات والتدخلات التي تتصددى حولب الداء المتعددة والبعقدة هيولى لغاموض الامعوي عر بلدرغم من التلقدم اللغوي في اللغوم المعربية والبتفكرات الحيف في وسائل لتحرير لفسرة الدماغ وتصوير الدمع بالتردد الامع الطيري اللعظفي ولي يظفي الدمع ويبلو عيه لاج عيهه ولبحوث الوربية اللعربية للتعقده والبعقدة والامل عقوق ان يتم التعرف على علامات عيهه مؤكدمتس مفبب لشف لم لولف الداء من غاموض متبب اللغومم الايكورب عيها. ت هدف هذه المقالة الى وصف صورته الهه عن الامعفة التي حمرلت وتجرى في تشخيصه لأول مره والى يومنا هذا والبتفكرات عيى يتس عيهه وتصيفه ومبببته وعييهه ويبلو عيهه وتشخيصه وبل اللعيب مع لعهه.

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***Modified Checklist for Autism in Toddlers, Revised with Follow-Up***  
***(M-CHAT-R/F)<sup>TM</sup>***

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For more information, please see [www.mchatscreen.com](http://www.mchatscreen.com)  
or contact Diana Robins at [DianaLRobins@gmail.com](mailto:DianaLRobins@gmail.com)

## Permissions for Use of the M-CHAT-R/F™

The Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R/F; Robins, Fein, & Barton, 2009) is a 2-stage parent-report screening tool to assess risk for Autism Spectrum Disorder (ASD). The M-CHAT-R/F is available for free download for clinical, research, and educational purposes. Download of the M-CHAT-R/F and related material is authorized from [www.mchatscreen.com](http://www.mchatscreen.com).

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The M-CHAT-R can be administered and scored as part of a well-child care visit, and also can be used by specialists or other professionals to assess risk for ASD. The primary goal of the M-CHAT-R is to maximize sensitivity, meaning to detect as many cases of ASD as possible. Therefore, there is a high false positive rate, meaning that not all children who score at risk will be diagnosed with ASD. To address this, we have developed the Follow-Up questions (M-CHAT-R/F). Users should be aware that even with the Follow-Up, a significant number of the children who screen positive on the M-CHAT-R will not be diagnosed with ASD; however, these children are at high risk for other developmental disorders or delays, and therefore, evaluation is warranted for any child who screens positive. The M-CHAT-R can be scored in less than two minutes. Scoring instructions can be downloaded from <http://www.mchatscreen.com>. Associated documents will be available for download as well.

## Scoring Algorithm

For all items except 2, 5, and 12, the response "NO" indicates ASD risk; for items 2, 5, and 12, "YES" indicates ASD risk. The following algorithm maximizes psychometric properties of the M-CHAT-R:

- LOW-RISK:** **Total Score is 0-2;** if child is younger than 24 months, screen again after second birthday. No further action required unless surveillance indicates risk for ASD.
- MEDIUM-RISK:** **Total Score is 3-7;** Administer the Follow-Up (second stage of M-CHAT-R/F) to get additional information about at-risk responses. If M-CHAT-R/F score remains at 2 or higher, the child has screened positive. Action required: refer child for diagnostic evaluation and eligibility evaluation for early intervention. If score on Follow-Up is 0-1, child has screened negative. No further action required unless surveillance indicates risk for ASD. Child should be rescreened at future well-child visits.
- HIGH-RISK:** **Total Score is 8-20;** It is acceptable to bypass the Follow-Up and refer immediately for diagnostic evaluation and eligibility evaluation for early intervention.



Child's name \_\_\_\_\_  
Age \_\_\_\_\_

Date \_\_\_\_\_  
Relationship to child \_\_\_\_\_

**M-CHAT-R™** (Modified Checklist for Autism in Toddlers Revised)

Please answer these questions about your child. Keep in mind how your child usually behaves. If you have seen your child do the behavior a few times, but he or she does not usually do it, then please answer **no**. Please circle **yes** or **no** for every question. Thank you very much.

- |  |     |    |
|--|-----|----|
| 1. If you point at something across the room, does your child look at it?<br>( <b>FOR EXAMPLE</b> , if you point at a toy or an animal, does your child look at the toy or animal?)  | Yes | No |
| 2. Have you ever wondered if your child might be deaf?   | Yes | No |
| 3. Does your child play pretend or make-believe? ( <b>FOR EXAMPLE</b> , pretend to drink from an empty cup, pretend to talk on a phone, or pretend to feed a doll or stuffed animal?)                                      | Yes | No |
| 4. Does your child like climbing on things? ( <b>FOR EXAMPLE</b> , furniture, playground equipment, or stairs)   | Yes | No |
| 5. Does your child make <u>unusual</u> finger movements near his or her eyes?<br>( <b>FOR EXAMPLE</b> , does your child wiggle his or her fingers close to his or her eyes?)   | Yes | No |
| 6. Does your child point with one finger to ask for something or to get help?<br>( <b>FOR EXAMPLE</b> , pointing to a snack or toy that is out of reach)   | Yes | No |
| 7. Does your child point with one finger to show you something interesting?<br>( <b>FOR EXAMPLE</b> , pointing to an airplane in the sky or a big truck in the road)   | Yes | No |
| 8. Is your child interested in other children? ( <b>FOR EXAMPLE</b> , does your child watch other children, smile at them, or go to them?)   | Yes | No |
| 9. Does your child show you things by bringing them to you or holding them up for you to see – not to get help, but just to share? ( <b>FOR EXAMPLE</b> , showing you a flower, a stuffed animal, or a toy truck)          | Yes | No |
| 10. Does your child respond when you call his or her name? ( <b>FOR EXAMPLE</b> , does he or she look up, talk or babble, or stop what he or she is doing when you call his or her name?)                                  | Yes | No |
| 11. When you smile at your child, does he or she smile back at you?  | Yes | No |
| 12. Does your child get upset by everyday noises? ( <b>FOR EXAMPLE</b> , does your child scream or cry to noise such as a vacuum cleaner or loud music?)   | Yes | No |
| 13. Does your child walk?  | Yes | No |
| 14. Does your child look you in the eye when you are talking to him or her, playing with him or her, or dressing him or her?   | Yes | No |
| 15. Does your child try to copy what you do? ( <b>FOR EXAMPLE</b> , wave bye-bye, clap, or make a funny noise when you do)   | Yes | No |
| 16. If you turn your head to look at something, does your child look around to see what you are looking at?  | Yes | No |
| 17. Does your child try to get you to watch him or her? ( <b>FOR EXAMPLE</b> , does your child look at you for praise, or say “look” or “watch me”?)   | Yes | No |
| 18. Does your child understand when you tell him or her to do something?<br>( <b>FOR EXAMPLE</b> , if you don't point, can your child understand “put the book on the chair” or “bring me the blanket”?)                   | Yes | No |
| 19. If something new happens, does your child look at your face to see how you feel about it?<br>( <b>FOR EXAMPLE</b> , if he or she hears a strange or funny noise, or sees a new toy, will he or she look at your face?) | Yes | No |
| 20. Does your child like movement activities?<br>( <b>FOR EXAMPLE</b> , being swung or bounced on your knee)   | Yes | No |

## What Do We Know About Bullying: A Review of Reviews from 2014 - 2019

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### Abstract

**Objective:** To update knowledge on bullying in school children and adolescents **Method:** All reviews from 2014 – 2019 related to bullying were retrieved using PubMed and Science Direct. A total of 357 hits were reduced to 58 reviews in English. **Results:** Bullying is currently defined as an intentional and repetitive harmful action or set of actions by another or others, with a power imbalance between the bully and the victim. Cyberbullying has entered the fray in addition to the already present physical and verbal bullying as well as social exclusion. The prevalence of bullying varied for study to study, and this could be at least partly due to definitions and instruments used. Socio-metric popularity, school climate, family dynamics and ethnic as well as gender minorities are important factors of involvement in bullying. A strong association was repeatedly found to exist between mental health and bullying. Externalizing disorders were more prominent in bullies and internalizing disorders were more prominent in victims. Bully victims showed overlap between the two categories. **Conclusion:** It is very important to use a clear definition of bullying. Recognizing it early in the school setting is important when improving the mental health of all involved: bullies, victims and bully-victims.

**Key words:** Bullying, childhood, internalizing, externalizing, adversities

**Declaration of Interest:** None

### Introduction

Bullying has been studied extensively since the 1970s and has become a major phenomenon recognized psychosocially. It has been defined, within school settings, as the exposure of a student, repetitively and over time, to purposeful and unwanted negative behaviors coming from one or more students with an asymmetric power relationship favoring the perpetrator(s).<sup>1</sup> Bullying involves three statuses which can be identified as follows: victims (individuals who are bullied), bullies (individuals bullying the victims, also known as perpetrators), or bully-victims (individuals who have become victims and perpetrators). The consequences of bullying are real and have a significant impact on children, adolescents and youth in their adult years. Ultimately, bullying has been reported to have serious outcomes whether the individual is a victim, a bully or a bully-victim.<sup>2</sup>

In order to better understand the concept of bullying, we conducted a review of meta-analyses and systematic reviews on children and adolescents that included studies from multiple countries.

While the most recent “review of reviews” about bullying was done by Zych *et al.* in 2015 with 66 systematic

reviews, the current review will cover bullying studies up until 2019. Zych *et al.* had examined 66 systematic reviews and synthesized knowledge about bullying, assessing demographic factors (age, gender), other risk and protective factors, as well as the effectiveness of anti-bullying programs and evaluations strategies.<sup>3</sup>

In this scope, we will review the factors mentioned above in addition to the relation of bullying to other factors, such as physical appearance, self-esteem, school setting, family dynamics, and peer factors. Quite importantly, mental health related issues, such as, personality factors, externalizing and internalizing clusters, depression, self-harm, suicide, PTSD, sleep disorders, eating disorders, substance use, and psychotic symptoms, will be reviewed. In addition to highlighting the currently available data on bullying, with its environmental and intrinsic (personal) risk factors, protective factors, and outcomes, our objective is to provide insight and raise concern about the present gaps in the field that need further research. Hence, our review could help in the establishment of future anti-bullying programs and evaluation strategies.

### Methodology

Our interest was to update our knowledge and understanding of bullying and its associated factors in school-age populations. Thus, we conducted a literature review of all reviews and meta-analyses published during the last five years (2014 to 2019 included), using the following MeSH terms related to bullying and meta-analysis/ reviews on PubMed. The key word “bullying” coupled with “meta-analysis” through the “AND” Boolean operator was used in PubMed and Science Direct databases. The research was restricted to review articles in the English language, excluding books, book chapters and theses. This search yielded 357 hits. We extensively screened all titles, abstracts and key words of these hits and retained 58 publications. The remaining articles had elements of our exclusion criteria, namely: pre-school and adult populations, specific populations of children and adolescents exclusively psychotic, or mentally retarded, or on the autism spectrum of disorders, and reviews on intervention programs and their outcome. We also excluded the reviews that were not specific to bullying, merging it to other types of violence.

### **Population**

The populations reported in the reviews consisted of children and adolescent students from schools<sup>1, 3-20</sup> from the general community,<sup>21-29</sup> from a clinical population<sup>30</sup> and from specific populations of low birth weight children,<sup>31</sup> of individuals with type 1 diabetes, in comparison with other chronic diseases and in contrast to healthy children,<sup>32</sup> and of individuals with eating disorders compared to healthy groups.<sup>33</sup> Some reviews did not mention the source of their population.<sup>1,12,34-50</sup>

### **Age**

All retrieved reviews looked at school aged population (6 to 18 years old) from middle school and high school, and four articles also including preschoolers<sup>2,5,8,9</sup> and older adolescents from colleges up to 22 years old.<sup>45,51</sup> One review also included an adult population with retrospective investigations concerning their childhood/adolescence,<sup>32</sup> while another included articles with age ranges of 6 up until 60 years<sup>33</sup>.

### **Scales and measures**

All retrieved reviews used self-report questionnaires, while six<sup>1,9,12,13,23,26,47</sup> did not declare the type of reporting used. Nineteen studies used parent-reports, sixteen used teacher reports, fifteen used peer reports, five used peer

nominations, and two used observational methods. The remaining reviews used either teacher nominations, interviews via telephone, only one question to the candidate, or an electronic online questionnaire.

## **Results**

### *Findings related to the definition of bullying*

Our first point of interest was to emphasize the significance of the definition of bullying. Across the years, this definition was subject to countless alterations.

In the current review, we found that the definition of bullying varied widely across studies. Most had no strict definition as a conditional inclusion criterion. Some defined bullying as repeated harmful behavior, characterized by an imbalance of power between the victim and the perpetrator.<sup>8,11,26,30</sup> Others provided questionnaires<sup>2,42,51</sup> which varied significantly with regards to: quantity (e.g., one type vs. at least two different types of aggressive behavior), frequency (e.g., bullied at least one time vs. four or more times), severity (e.g., slapped vs. hurt with a weapon), actuality (e.g., threatened to be hurt vs. actually hurt), temporality (e.g., in the previous three months vs. during the last year), types (e.g., physical vs. verbal bullying), motives (e.g., because of sexual orientation vs. race), and setting (e.g., school, community, online).

The definition of bullying provided by Olweus (1978), in his book “Aggression in the schools. Bullies and whipping boys”, had the highest impact in the field of bullying. In 1994, Smith noted that bullying could be direct (physical or verbal) or indirect (social exclusion or rumor spreading).

The review by Zych *et al.* retraced the definition of bullying from a chronological perspective<sup>7</sup>. The review established an evolution in the studies regarding the definition of bullying from the 1970s until 2013. The authors considered the three following themes: nature and dynamics of bullying (definition, forms, differences and similarities to other types of violence), bullying related factors, and involvement of minority groups.

According to Zych *et al.*, from 1996 to 2000, bullying became recognized as a group phenomenon and the roles involved in bullying were well defined (bully, victim, bystander, reinforcer of the bully, assistant of the bully, defender of the victim and outsider).<sup>7</sup> From 2001 to 2005, studies spread to an international level. Studies on mental health and other personal and environmental factors were studied. Establishing a clear definition of cyberbullying compared to bullying was also a concern. From 2006 to

2013, bullying was reported to be a universal phenomenon and socio-emotional factors were studied. Mental health factors and school factors were studied in meta-analyses. From 2011 to 2013, the differences between bullying and cyberbullying were analyzed: the two population were highly overlapping, the criteria of repetition and power imbalance were not as clear online as in the traditional bullying. After 2013, according to Zych *et al.*, defining cyberbullying combined challenging factors such as the criteria of repetition, the number of perpetrators, the anonymity of the action, and the difficulty of the victims to defend themselves.<sup>7</sup> Kljakovic *et al.* and Aboujaoude *et al.* reached the same conclusion as Olweus, who was considered the most meticulous in defining cyberbullying in 2018.<sup>1,36,41</sup> After scanning the present publications on cyberbullying, Olweus *et al.* found heterogeneous findings suggesting disparate operationalization of the concept and of its definition. This resulted in problems in understanding, replicability, prevention and intervention. He defined cyberbullying as bullying via electronic forms of communication, where the imbalance of power is in the technological knowledge, the relative anonymity, the social status, the number of friends, and the marginalized group position. The repetition lies in the number of individuals that can be reached, or the length of time for which the aggression can remain in cyberspace, rather than the perpetrator's behavior that is often a single act.

In addition to this definition, Aboujaoude *et al.* added that the repetitiveness of the cyberbullying act could take place in the act of sharing and forwarding the post by "new aggressors", causing a "negative bystander effect". Thus, a single attack can feel like a group lynching, as the authors say. Also, the permanence and the difficulty of erasing online postings, can outsize the effect of this single attack.<sup>31</sup> Similarly, Kowalski *et al.* differentiated cyberbullying from traditional bullying by its anonymity and its occurrence at any time of day or night.<sup>39</sup> On a side note, Wole *et al.* discussed the concept of sibling bullying, defining it as "any unwanted aggressive behavior by a sibling that involves an observed or perceived power imbalance and is repeated multiple times".<sup>43</sup>

To date, a common definition for bullying can be suggested, describing it as the exposure of a student, repetitively and over time, to purposeful and unwanted negative behaviors coming from one or more students with an asymmetric power relationship favoring the perpetrator(s).<sup>1</sup>

### ***Findings related to bullying prevalence***

The prevalence rates of traditional bullying differ markedly from one study to another. Since each review shares a widely different prevalence, no clear conclusions

can be drawn. This could be explained by the difference in each study's characteristics, such as: the definition of bullying (present v/s absent; specific v/s unspecific), the nature of the sample (community v/s mainstream school), the measures used (e.g. one/multiple measures, one/multiple informants, simple questions v/s scales), the set time frame (e.g. last month, last term, last year, ever at school), the population's demographics (age and gender), the bullying status (victimization, perpetration and both) and the type of bullying (verbal, physical, cyber, indirect, or direct). Moreover, Kowalski *et al.* considered another set of parameters, also affecting the prevalence, consisting of time (e.g., at least once, two to three times a month or more), age, gender and race of the studied sample.<sup>39</sup>

Cyberbullying was less prevalent than non-cyber (or traditional) bullying, across both perpetration and victimization.<sup>48</sup> Olweus *et al.* explained that when cyberbullying is measured in the context of traditional bullying, it has a lower prevalence compared to traditional bullying. Thus, more children are involved in traditional bullying than in cyberbullying.<sup>1</sup> With this in mind, they clarified that in contrast to the common belief of researchers and media, no systematic change occurred in the prevalence of bullying between 2006 and 2014.

Aboujaoude *et al.* also explained that prevalence estimation is difficult because cyberbullying is underreported. Perpetrators underreport since cyberbullying is easy to hide, while victims underreport out of fear of punishment and embarrassment, similarly victims of traditional bullying.<sup>36</sup>

### ***Findings related to bullying, age and gender***

Regarding age, Tsaousis observed that bullying perpetration seems to increase during childhood, peak during early adolescence and slightly decrease during late adolescence. Moreover, the physical type of bullying decreases with age, while verbal, relational and bullying increases.<sup>21</sup> An interesting review of 2012, by Ttofi *et al.* states that the younger the children when they manifest a bullying behavior, the more they are at risk of being violent later in life.<sup>52</sup>

While many reviews did not study the effect of gender on bullying,<sup>8,12-14,26,30,44,45,51</sup> some showed that gender had no clear effect on bullying.<sup>2,9,10,18,27,42,46</sup> Studies reported that perpetration (either traditional or via Internet) was more common in boys,<sup>3,5,36,37</sup> and that victimization (also traditional and online) was more likely to happen to girls.<sup>36,37,39,53</sup> Boys were perpetrators of a direct (physical) form of bullying, while girls often perpetrated a more indirect (nonphysical) form of bullying.<sup>7</sup> Young girls were more likely to engage in bullying in mid-adolescence, while boys did so more often in late adolescence.<sup>38,39</sup>

Barlett *et al.* found that boys are overall more likely to be cyberbullies than girls. Differences also arise in cyberbullying according to gender by age. In younger individuals, girls engaged in more cyberbullying than boys.<sup>54</sup> As the sample ages, boys engaged in more cyberbullying than girls. Both reached similar levels of cyberbullying at approximately an average age of 11 years. Interestingly, another study reported that having masculine traits in both boys and girls was a risk factor for being cyberbullying perpetrators.<sup>39</sup>

### ***Findings related to bullying & physical factors***

Physical appearance has been found to play a major role in bullying. While multiple physical factors are potentially involved, we will only include acute health conditions, chronic health conditions and body weight.

Kowalski *et al.* examined the association between health-related problems and bullying. They found that youth with disabilities (chronic health conditions) are more likely than their peers to be involved in bullying: girls were more at risk of being traditional victims and cyber bully-victims, while boys were more at risk of being traditional bully-victims and cyber victims.<sup>39</sup> Piquart *et al.* also showed that, compared with their healthy and nondisabled peers, young people with chronic illnesses or with physical or sensory disabilities were more likely to be victims. Children with chronic conditions most often reported to be victims because their illness changed their appearance (e.g., in the case of craniofacial conditions) or their weight (in the case of obesity).<sup>10</sup> Moreover, according to Andrade *et al.*, patients with type 1 diabetes mellitus are more at risk of being victims compared to children and adolescents with other chronic diseases or with healthy peers.<sup>32</sup>

Concerning body weight, one review showed mixed results, while four others found clear results.

Body Mass Index (BMI) is reported to be a genetic risk factor for bullying exposure, especially in cultures where the BMI is negatively perceived by others.<sup>8</sup> Studies between 2001 and 2005, found that overweight and obese children were both bullies and victims.<sup>7</sup> Youth who were victims of cyberbullying considered themselves too fat, nearly twice as likely as their non-cyberbullied peers.<sup>39</sup> During early adolescence, the rates of weight-related victimization are the highest, compared with childhood, middle and late adolescence, most probably because of cultural ideas of thinness and masculinity.<sup>35</sup> Additionally, between 1950 and 2013, both overweight and obese youth experienced significantly more bullying than normal-weight youth, with no effect of gender on the results.<sup>46</sup>

Additionally, Alvarez-Garcia *et al.* reported that usual physical health problems (headache, stomach ache, backache, hearing impairment and cough or cold) are common in bullies, while chronic health diseases (eczema, allergies, asthma, diabetes, visual impairment, speech difficulties, motor disability, gastrointestinal problems, and epilepsy) are not. The percentage of bullies, who report having health problems of any kind, is lower than that of the victims but is higher than that of students uninvolved in bullying.<sup>5</sup>

### ***Findings related to bullying & friends/peer factors***

There is a clear distinction between peer acceptance and popularity. Popularity is defined as having desirable traits, such as leadership, influence, respect, athleticism, attractiveness and wealth, but popularity does not necessarily mean being liked or accepted by peers.<sup>35</sup>

It appears that bullies are popular,<sup>35</sup> but not liked by their peers and have weak attachments to peers.<sup>7</sup> Thus, being a bully is positively associated with both popularity (visibility, center of attention, especially in adolescents) and low levels of acceptance (more in boys than in girls). As such, high peer acceptance is a protective factor against bullying perpetration.<sup>5</sup>

Being a bully is associated with, having peer social pressure, having a large number of friends, befriending bullies, needing social dominance, and belonging to gangs, associating with deviant online peers, having the support of the classroom, and having mutual friends with the victim. Having friends who are gay decreases one's prejudice towards them and the likelihood of being a bully.<sup>3,5,7,38-40</sup>

Being a victim is associated with having people to admire or wish to affiliate with, being part of small subset groups, having high levels of peer rejection, having low levels of perceived peer support (reported for cyber victims), having poor social competence and poor peer status.<sup>3,7,35,37</sup> Unsatisfactory relationships with classmates, such as experiences of isolation and harassment by classmates, are more common in victims and in students uninvolved in bullying compared to bullies.<sup>5</sup> However, it is not clear whether being a victim is a direct consequence of these factors.

Being a bully-victim is associated with having negative peer influence, low social competence and poor peer status.<sup>3</sup>

Bystanders see bullying behavior more acceptable coming from popular peers and encourage it.<sup>35</sup>

### ***Findings related to bullying & school factors***

#### *School-related risk factors*

Specific school factors seem to negatively influence bullying behavior, as follows:

In-school transitions immediately increase bullying (i.e. moving from elementary to middle to junior high school), decreasing in the year after. Bullying is more likely to occur in locations where adults are not present and these increase with age: (1) elementary school children: classrooms and on playgrounds; (2) adolescents: hallways, cafeterias, and recess areas, but also, after-school jobs, on the way to and from school, and the Internet.<sup>35</sup>

Negative school climate and the lack of teacher's support are significant contributing factors. Interestingly, a low percentage of girls in school is related to negative school climate. In addition, the lack of clear rules with consequently less commitment to them, the exposure to violence at school and perceived school safety are promoting factors of bullying and cyberbullying. Permissive or encouraging attitudes of classmates towards bullying and the frequency of bullying behavior in class also correlate with bullying. Poor academic performance and/or teachers having low expectations about the student's performance, are both reported to be risk factors for being a bully.<sup>5,7,20,35,37,39</sup>

Concerning the relationship between cyberbullying and traditional bullying, the cyberbully often appears to be the same bully from school. Kowalski et al showed that youth who are bullied face-to-face are also likely to be bullied online.<sup>47</sup> It is not clear which one occurs first. The cybervictim is also the victim at school.<sup>35,37</sup>

An interesting observation based on the "role inversion hypothesis" reveals that being a traditional school bully or a cyberbully is a risk factor for becoming a cybervictim.<sup>37</sup> In fact, youth at school who are reluctant to bully others face-to-face, seem to do so when the bullying gets anonymous and indirect online.<sup>35</sup>

#### *School-related protective factors*

Having a close relationship with teachers and perceiving the teacher as a supportive promoter of mutual respect, are protective factors against becoming a bully. Having a positive climate of coexistence at school, a sense of belonging, and reporting school satisfaction are negatively correlated with being a bully.<sup>5,20,37,39</sup>

The perception of school safety, the clearness and the fairness of the rules, showing higher school commitment and the development of online social activities in school to prevent bullying are reported to be protective factors against bullies.<sup>39</sup>

Academic achievement has also been found to have a clear influence on bullying. More specifically, high academic achievement was shown to be protective against being a victim.<sup>20</sup>

#### *School-related neutral factors*

Some variables seem unrelated to bullying, such as attending urban schools, ethnic diversity in class, the number of students per school, the number of students per teacher, and the socioeconomic status of the school.<sup>5</sup>

### ***Findings related to bullying & family factors***

#### *Parenting behavior*

Being a bully is associated with the following risk factors: not living with two biological parents (traditional structure), having parents with "unstable emotional health" (as reported), having alcohol or drug use in the family, being exposed to family violence (family conflicts, domestic violence, physical abuse or sexual abuse).<sup>5,7,29,37</sup> Moreover, suffering from insufficient parent support, low communication, poor emotional support and bonding, poor parental attachment, lack of clear parental rules, lack of control of technology and online activities are additional risk factors.<sup>5,7,20,29,37-40</sup> On the other hand, being a bully was also associated with protective factors, such as benefiting from positive parental emotional support, bonding, and monitoring (monitoring of online activities in a collaborative manner, instead of a restrictive manner).<sup>20,29,39,40</sup>

Being a victim is associated with the following risk factors, living in a single-parent household, in an unsafe neighborhood, and in a negative family environment characterized by family violence.<sup>39</sup> Maltreated children were more likely to be bullied than children who were not exposed to maltreatment.<sup>55</sup> The protective factors consisted of living in a safe neighborhood, parental warmth, family support, and collaborative parental monitoring.<sup>29,39,40</sup>

Victims and bully-victims were less likely to have authoritative parents, more likely to have good parent-child communication, to be involved or supportive parents, and more likely to have parental supervision, and warm or affective parents. Thus, they were more likely to have been abused or neglected, to have been raised by

overprotective parents or experienced maladaptive parenting.<sup>30</sup> Finally, parental warmth has been shown to attenuate the negative outcomes of cybervictimization such as subjective health complaints and self-esteem.<sup>39</sup>

#### *Socioeconomic status (SES)*

The association of bullying with socioeconomic status showed mixed results. Alvarez-Garcia *et al.* reported that students with high or low socioeconomic status seem to have a similar probability of being bullies.<sup>5</sup> However, according to Tippet *et al.*, victimization and perpetration were positively associated with low SES and negatively associated with high SES. Another review found that bully-victim status was related only to low SES,<sup>8</sup> high SES was not related to higher rates of being a bully-victim.<sup>20</sup>

#### *Sibling bullying*

According to Wolke *et al.*, sibling bullying is the most frequent form of maltreatment. They indicated that sibling relationships “are probably the most aggressive relationships that the majority of children will ever encounter during their childhood”. Wolke *et al.* reported that sibling bully-victims were at a higher risk of behavioral problems than victims only. Parental factors were also revealed to greatly affect sibling bullying. Sibling bullying is higher in households where the majority of siblings are males, with a high number of siblings, or where the age gap between siblings is less than a year apart. As expected, the younger siblings were the most victimized. Caretaker behaviors, maltreatment and violence increased the risk of sibling bullying. This is similar for absence and neglect. Low socioeconomic status also predicted higher rates of sibling bullying. Cultural differences have also been shown in sibling bullying, for example in the USA, immigrant siblings spent more time together, were more intimate, and provided greater social support, whereas US native-born siblings showed more bullying.<sup>43</sup>

In addition, concept of “carry-over” explains that sibling bullying is transmitted into peer bullying later on, while maintaining the same roles (bully, victim or bully-victim). This applies more for boys than for girls.

#### *Sibling bullying & mental health*

Sibling bullying was reviewed by Bowes *et al.* who found that psychiatric outcomes of sibling bullying indicate high depression scores, and strong associations with increased mental distress in victims. The associations with behavioral problems were stronger with more severe sibling victimization. Behavioral problems were increased if the child was bullied at home and by peers at school. Also, sibling bully-victims were at higher risk of behavioral problems than victims only, while no increased

risk was seen for bullies. On the other hand, other studies showed increased mental distress in sibling victimization only in children aged 0-9 years, but not in adolescents or young adults. Furthermore, after controlling for several family factors (pre-existing behavior, emotional problems, peer bullying, child maltreatment by adults, and domestic violence in the household), sibling bullying independently increased the risk of clinical depression and self-harm.<sup>56</sup>

#### ***Findings related to bullying & minorities***

##### *Ethnic minorities*

Concerning ethnicity and its relation to bullying, the results of victimization seem to be mixed based on the studied samples. According to Zych *et al.*, two studies (one in Netherlands and the other in England) done before 1995 showed no difference between minority groups and the corresponding majority groups.<sup>7</sup> In the Netherlands, Turks, Surinamese and Moroccans were compared to Dutch citizens, while in England, Asians were compared to Caucasians. In other studies, minorities (Blacks and Hispanics among Caucasians, and Arabs among Jews) were more likely found to be bullies.<sup>5,19,39</sup> In contrast, some studies reported that some minorities suffer from more victimization than the majorities, given that some authors suggest that this situation improves in inclusive contexts with more diversity.<sup>3</sup> Interestingly, having a strong ethnic identity protected ethnic minorities and immigrants against bullying.<sup>19</sup>

Vitoroulis *et al.* compared bullying ethnic minorities (Black, Hispanic, Asian and North American Aboriginal students) and majorities (white students) in published and unpublished studies.<sup>12</sup> They found that ethnic minorities reported more peer victimization than majorities in unpublished studies compared to published studies. In addition, ethnic majorities reported more victimization than ethnic minorities in the US than in other countries and in published studies.

##### *Gender minorities*

Gender minority reported to be a risk factor for peer victimization in adolescence.<sup>5,35</sup> Likewise, cyberbullying victimization has shown high rates among LGBT teens.<sup>36,39</sup> Homophobic teasing seems to be as prevalent as weight-related teasing.<sup>35</sup>

According to Espelage *et al.* empathy, parental support and positive school climates (prohibiting homophobic name-calling) form clear protective factors against homophobic bullying.<sup>17</sup>

### *Other minorities*

Youth with intellectual disabilities, were found to have high prevalence rates of physical, verbal, relational, and cybervictimization.<sup>34</sup> Children who stutter were more bullied than others.<sup>7</sup> However, no clear differences were seen compared to peers with other types of disabilities or compared to typically developing peers.<sup>34</sup>

### **Findings related to bullying & mental health factors**

#### *Personality factors*

The Big Five Personality Traits (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism) in bullying were reviewed by Kowalski *et al.* in 2018.<sup>39</sup> A negative association was found between being a bully and agreeableness. Similarly, Mitsopoulou *et al.* showed that in addition to agreeableness, conscientiousness was negatively associated with being a bully.<sup>22</sup> Zych *et al.* also reported these findings in addition to low extraversion being negatively associated with bullying perpetration. In the same way, neuroticism and openness were positively associated with victims, while conscientiousness and extraversion were negatively associated with victims.<sup>20</sup>

#### *Self-esteem*

Mixed results were found when it comes to issues of self-esteem. Both low and high self-esteem were reported to be risk factors for being a bully. High self-esteem may lead some individuals to abuse their higher status in the group and act as bullies. Similarly, in order to achieve higher status and acceptance in the group, low self-esteem individuals tend to also act as bullies.<sup>3,21</sup>

On the other hand, low self-esteem was found to be a significant risk factor for victims.<sup>35</sup> Individuals with low self-esteem were more frequently victimized than those with high self-esteem, attracting negative attention or low social-esteem.<sup>3,21</sup> Victimization can lead to negative self-schemas, increased self-criticism, and severe emotional distress<sup>35</sup>. Thus, a chain reaction can be noted according to the global self-esteem scale, victims' low self-esteem triggered bullying behaviors by perpetrators, leading the victims to have even lower levels of self-esteem. Results seemed to be similar for cyberbullying. While both low and high self-esteem were risk factors for cyberbullying perpetration,<sup>3,5,37</sup> only low self-esteem was a significant risk factor for being a cybervictim. Interestingly, high self-esteem was shown to be a protective factor against becoming a victim or a cybervictim.<sup>20,37,39</sup> However, Alvarez-Garcia *et al.* found that self-esteem did not protect children from being victims of severe

cyberbullying, whereas efficacy in defending and high emotional-management were protective factors.<sup>39</sup> Self-related cognitions, as well as intelligence and problem solving, were found to be protective against traditional and cyber victimization, according to Zych *et al.*<sup>20</sup>

#### *Attitudes and values*

Tolerance towards bullying, having dark-side traits (narcissism, especially sadism), having high moral disengagement (denying wrongdoing, blaming the victim, minimizing and justifying aggression) correlated with being a bully and a cyberbully.<sup>3,7,35,37,52</sup> In fact, Gini *et al.* reported that the link between moral disengagement and bullying perpetration was quite significant. They also noted that the estimated correlation between cyberbullying with moral disengagement was slightly higher than that observed with traditional bullying.<sup>42</sup>

In addition, gender stereotypes, sexism towards women and negativity towards homosexuals were also associated with being a bully. It is also important to note that having religious values seemed to prevent individuals from reporting bullying perpetration.<sup>5</sup>

#### *Empathy*

In most studies, researchers distinguished two dimensions for empathy: affective empathy and cognitive empathy. Each one seemed to be differently associated with bullying.

While cyberbullies were found to have both low affective and cognitive empathy,<sup>23,39</sup> traditional bullies had low affective empathy and high cognitive empathy.<sup>7</sup>

Although some studies reported that traditional and cyberbullying victims had high affective empathy,<sup>23,39</sup> Zych *et al.* found that high empathy was not related to traditional and cyber victims. There were not enough studies to draw conclusions concerning the association between empathy and cyberbullies or cyber victims, although cyberbullies had low scores in affective empathy in some studies.<sup>20,50</sup>

Defending a victim was rarely studied by researchers, but Zych *et al.* reported that defending against traditional bullying was related to cognitive and affective empathy (with high empathy associated to defending against cyberbullying).<sup>20</sup> Interestingly, it seems that individuals who defend victims tend to be girls, with high empathy and low moral disengagement.<sup>50</sup>

### ***Internalizing and externalizing clusters***

Recently, preexisting multi-genetic mental health vulnerabilities were shown to be risk factors for exposure to bullying, according to Schoeler *et al.*<sup>28</sup>

Internalizing problems comprise depression, anxiety and anger (internal), while externalizing problems consist of hyperactivity-impulsivity, aggressiveness/violence, anti-social traits, risky sexual behavior and substance use behavior. Conduct problems, social problems, prior victimization and internalizing problems were found to be significant risk factors that predict victimization, in the meta-analysis of Kljakovic *et al.*<sup>41</sup> In addition, conduct, social, and school problems were recognized as risks for perpetration.

According to Kowalski *et al.*, cyberbullying is associated with a variety of negative consequences for both victims and perpetrators.<sup>15</sup> Fisher *et al.*, the increase in peer cyber victimization was associated with both internalizing and externalizing problems.<sup>9</sup> More specifically, victims have been shown to be at an increased risk for depression and anxiety, as well as violence.<sup>11,52</sup> Interestingly, it seemed that externalizing problems are not only a consequence of peer victimization, but also predict victimization.<sup>44</sup> Below, we will review the association of bullying with internalizing and externalizing clusters, and then focus specifically on depression, suicide, self-harm, PTSD and substance use.

### ***Externalizing mental health disorders***

Several studies have consistently found a positive correlation between being a bully and externalizing symptoms.<sup>3,5,7,8,35</sup> Cyberbullying perpetrators revealed impulsivity, low levels of self-control, high levels of thrill seeking behaviors, negative mood, offline aggression, more behavioral problems (conduct, hyperactivity, delinquent) and more substance use problems (alcohol, tobacco). In addition, perpetrators showed high levels of depression later on in time.<sup>36-39</sup>

### ***Internalizing mental health disorders***

Internalizing problems appeared in many studies to be more frequently correlated with being a victim, particularly with adolescent girls, linked to early pubertal timing.<sup>3,5,7,8,35,57</sup> Depression, loneliness, generalized anxiety, social anxiety and insecurity are significant risk factors for victimization as well as suicidal ideations and behaviors.<sup>3,36,38</sup> Similarly, interestingly, children who were bullied were more likely to have anxiety and depression than those who were maltreated by adults.<sup>55</sup>

As for cyberbullying, when studying the frequency of involvement as a bully, victim, or both, only the

association of victims with depression was positive. Also, the most common role in cyberbullying was being a bully-victim.<sup>7</sup> Moreover, cyberbullying was discovered to be related with internalizing problems, suicidal thoughts, and less moral values, emotions and disengaged behaviors (for perpetrators), proactive and reactive online aggression, but also peer influence in the involvement in cyberbullying.

Only one longitudinal study investigated the persistence of the effects of cyberbullying into adulthood. It showed that externalizing problems increased for female victims and did not change for male victims across time. Internalizing problems decreased over time for male perpetrators.<sup>36</sup>

Among girls, frequent victimization predicted psychiatric hospitalization, the use of antipsychotics, antidepressants and anxiolytics. Similarly, cyber victimization of females was significantly associated with depression<sup>47</sup>. Boys, whether bullies, victims, or bully-victims, were not at increased risk of later psychiatric outcomes.<sup>11</sup>

Those with very low birth weight were more at risk of victimization because of their lower IQ, lower motor skills, lower self-esteem, as well as for their emotional and behavioral problems (anxiety and ADHD symptoms). As for those with extremely low birth rates, these was greater risk of victimization because of their later experiences of poor peer connectedness.<sup>31</sup>

### ***Depression***

Depression was shown to have a very strong association with victimization. Depressive symptoms can intensify during adolescence, particularly for girls, because of increased affective, neural, and physiological responses to rejection and exclusion. In adolescence, the executive functions needed for affective and behavioral regulation remain underdeveloped, and the desire for peers' approval is increased. As a result, peer victimization has a detrimental impact on self-identity leading to the development of depressive symptomology.

Social isolation, environmental stress and intrapersonal vulnerabilities (negative self-schemas, physiological over- or under-arousal, and a lack of perceived belongingness) were found to be risk factors for peer victimization in adolescence. Moreover, it appears that an early pubertal timing is a risk factor for interpersonal vulnerabilities, depression, anxiety and insecurity.<sup>35</sup>

### **Suicide and self-harm**

Reviews consistently showed significant associations between bullying (traditional or online) and suicidal ideation and behavior, for victims, bully-victims and also for bullies.<sup>1-5,7,21,23,35,37,53,55</sup> Interestingly the children who were bullied were more likely to have suicidality and self-harm as adults than children who were maltreated by adults<sup>55</sup>. While Olweus did not find that cyberbullying had more impact compared to traditional bullying, other articles found that cyberbullying increased suicidal ideation and loneliness more than traditional bullying.<sup>1,36,39</sup>

When comparing genders for bullying in general, one study demonstrated that the risk of suicidal ideations and attempt is higher in girls than in boys.<sup>3</sup> This risk was also found to be correlated with cannabis use.<sup>4</sup>

One study found that GLB (gay, lesbian, bisexual) groups were the most vulnerable to suicidal ideations and attempt compared to heterosexual groups, especially due to lack of social support.<sup>3</sup>

Self-harm was used by victims to communicate their pain or to connect with other self-injurious peers.<sup>35</sup> Also, self-harm seemed to be more common in bullies compared to peers not involved in bullying.<sup>5</sup>

### **PTSD (Posttraumatic stress disorder)**

Bullying was found to be associated with PTSD symptoms. Yet, a causal relationship is still not well established due to the lack of longitudinal studies. Only one meta-analysis showed that bullying had a strong association with PTSD among children and adults.<sup>58</sup>

### **Substance use**

Some reviews reported an association between bullying and substance use. A review by Maniglio, including 26 reviews on cannabis use and its relationship with bullying, reported mostly nonsignificant results. Only three reviews in this review found a positive association between cannabis use and bullying victimization, and one review found a positive association with bullying perpetrators.<sup>6</sup> Similarly, Ttofi *et al.* showed that youth who bully are twice as likely as controls to use drugs later in life.<sup>14</sup> In another review, cyberbullying perpetration was found to be associated with drug and alcohol use.<sup>3</sup>

### **Eating disorders & psychosomatic symptoms**

Being a victim seemed to be associated with a history of eating disorders (bulimia, anorexia nervosa, and dietary restraint) compared to healthy controls.<sup>33,35</sup> In an older review of 2013 by Gini *et al.*, bullied children were found

to have a significantly higher risk for psychosomatic problems, and were more likely than non-bullied peers to suffer from headache.<sup>13,53</sup>

### **Psychotic symptoms**

One review showed that bullying was associated with a higher risk of psychotic symptoms. Bullied children had a higher risk of experiencing psychotic symptoms in adolescence or adulthood compared to non-bullied children. Moreover, being bullied increased the odds of developing persistent psychotic symptoms. The same applies to the frequency and forms of bullying, children who experienced more than one form of bullying (overt and relational; e.g. kicking and gossiping) had a higher risk of developing psychotic symptoms compared to children who experienced only one form of bullying.<sup>26</sup>

### **Sleep**

Among all the gathered reviews, only one by Van Geel *et al.* showed that sleep, in children, was significantly affected by bullying. Victims reported more sleeping problems than children who did not report victimization, especially for younger children compared to older ones, without significant effect of gender.<sup>27</sup>

## **Conclusion**

In conclusion, bullying seems to be currently best defined as an intentional and repetitive harmful action or set of actions by another or others, with a power imbalance between the bully and the victim, over time. It includes physical forms of bullying, as well as relational bullying such as verbal bullying or social exclusion. Studies on cyberbullying agree that this phenomenon should be understood as just another form of bullying that sprung anew in the modern world where technology is so commonly used by young people as a primary mean of communication and interaction.

The current review shows that the prevalence of bullying varies tremendously from one study to another, and is thus hard to estimate, due to the lack of strict use of the definition among the various studies. Until now, one can still debate if at least one, or two, or all three criteria (intentionality, power imbalance, repetitiveness) should be present in order to diagnose harmful behavior as bullying. This problem not only affects prevalence rates, but also other findings that are supposed to contribute to a better understanding of the phenomenon of bullying. Nevertheless, our reviewing of reviews on the risk and protective factors reported some replicated results from different studies that seem worth keeping in mind.

The factors of age and gender showed that manifesting a bullying behavior at a younger age increased the risk of being violent later in life. Moreover, from a younger age, girls are more likely to engage in bullying while boys are more at risk of being bullies in late adolescence. Overall, boys are more likely to be cyberbullies than girls.

As for physical factors, chronic health conditions were mostly found in victims, while body weight showed mixed results. More specifically, acute physical health problems were common in bullies, while chronic health diseases were more common in victims.

This review also demonstrated that being a bully was positively associated with both socio-metric popularity (visibility, center of attention, especially in adolescents) and low levels of acceptance (more so in boys than in girls), while being a victim was associated with having people to admire or wishing to affiliate with, being part of small subset groups, having high levels of peer rejection, having poor peer support (for cyber-victims), poor social competence and poor peer status.

School climate was shown to be a very important factor in the bullying phenomenon, meaning that the lack of clear rules, the lack of teachers' support, the encouraging attitudes of classmates towards bullying, the exposure to violence at school and perceived school safety were promoting factors for bullying and cyberbullying.

Family dynamics were also another influential factor in bullying; victims and bully-victims were less likely to have authoritative parents, good parent-child communication and supervision and supportive, warm and affective parents. Bullies, on the other hand, were more likely to not live with the two biological parents (traditional structure), have a parent with unstable emotional health, have alcohol or drug use in the family, are exposed to family violence (family conflicts, domestic violence, physical harm or abuse of the child, sexual abuse of the child) and have the perceived likelihood of being punished by adults. With regard to sibling bullying and its relationship to peer bullying, our review indicates a "carry-over" from sibling bullying to an involvement in peer bullying, while maintaining the same roles (bully, victim or bully-victim).

Ethnic and gender minorities were shown to be victims of bullying, but reviews offered mixed results. Bullying of ethnic minorities differed depending on the ethnic diversity of the country. As for gender minorities, homophobic teasing seemed to be as prevalent as weight-related teasing, with a particular risk for suicidality and self-harm associated to the former.

A strong association was repeatedly found to exist between mental health and bullying: being a victim appears to be highly associated with internalizing disorders. More specifically, depression was found to have the strongest correlation with peer victimization. This seems particularly true during the vulnerable period of adolescence in general, and specifically for girls with early or late pre-pubertal and pubertal timing which seems to increase responses to rejection and inclusion. Moreover, in vulnerable stages of development that are full of interpersonal difficulties and environmental stress, suicidal ideations and behavior, as well as self-injurious behaviors increase for all bullying status, including victims, bullying-victims, and bullies, in comparison with the none involved. However, onset of the disorders being more frequently prior (creating some sort of power imbalance) or following the bullying, still needs further investigation.

Being a bully was most frequently found to be positively associated with externalizing disorders (such as hyperactivity-impulsivity, aggressiveness, anti-social traits, callous-unemotional traits and substance use behavior). Moral disengagement, defined as the detachment of moral self-sanctions while still maintaining a positive self-regard, was identified as an engaging factor in the act of bullying, since it encouraged aggressive behavior in bullies. With regard to internalizing symptoms in bullies, both low and high self-esteem appear as risk factors for being a bully. Low self-esteem seems to lead some to look up to bullies and want to identify with them. More specifically, the reviews addressing the issue of depression in bullies seem to indicate that, bullies tend to have depressive and suicidal symptoms mostly at later stages in their lives.

All the personal and environmental risk and protective factors that were identified, have shed some light into what should be addressed when building an anti-bullying intervention program is considered. Bullying should not be addressed with disciplinary measures only. Reinforcing moral values and addressing mental health problems and related issues, are very important to accomplish, both at a family as well as at school level. When an individual is identified as a victim of bullying, or identified as being a bully, it is essential to assess whether he / she is a bully-victim. Mental health issues are crucial to assess in victims, bully-victims, and bullies.

That said, it remains a priority to re-emphasize the importance of using a clear definition when discussing bullying or addressing it. For that matter, there is an urgent need to agree on a clear and current definition (with number of criteria required), and improve the available instruments aiming at assessing bullying so that it includes

the three criteria of the definition (power imbalance, repetitiveness and intention to harm).

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## المختص

الهدف بتحيث المعلومات والمراهقين في المدارس لطريقه يتم ليتخراج لكل المراجعات حول للتقمر في ذنونة 4102 الى سنة 4102 ليتبع عمال PubMed & Science Direct. ليتطرحا أن سجل في 85 مراجعه. **التقمر** بي عرف للتقمر حللي بل فعل لضرار مقصود وتكرار او مجموع من افعال من اخر او اخوين، مع عدم توازن لوقوعين للتقمر والضرر. دخل للتقمر الانترنتي الى الامعركة من هذا الى التقمر اللفظي لضربه الى العزلة الاجتماعي تتراحت معدلات انتشار للتقمر من درلة لأخرى، يعزى هذا لوجوهي تقوى التقليل للتعريفات والأدوات المتعددة. التشريعية الإيجابية للتقمر، جو المدرسة، الديناميكية الأثرية والأثرية والتجريبية. هي عوامل مهمه لانتشار التقمر للتقمر لوجد انتباطقوي بين للتقمر والضرر في التقمر. الاضطرابات لاجتماعية وكثيرات وضرر في التقمر والتجريبية والاضطرابات الداعية لكل تتبارز في التقمر حللي. اضرر حللي للتقمر كالتقمر مع الاضطرابين الامع جو يعين. **الخاضة:** تقمر من الامع وجود تعريف وضرر للتقمر. انتبهية بظهور في المدرسة هام للضرر في التقمر، لضرر حللي والتقمر للضرر.

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## Relapse Following Treatment of Drug Dependence in the Gulf Cooperation Council Countries: A Systematic Review and Meta-Analysis

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التكامل قب عد علاج الإدمان على لم خدراتفي دول مجلس التعاون الخليجي: مراجعة في هجية وتلوي لتلوي

شيوخ فنصر الأحمد، شاراريفيصل لامهري، لبراء طارق الاحمد، وليد خالد السعود، عيتم عي ج هرمي، عادل رشيد اللغبي، زنده يحي حمادة

### Abstract

**I**ntroduction: Globally, substance misuse remains a public health priority for many countries. Substance misuse is a chronic health problem with a high risk of relapse along its course. Few studies have investigated relapse as relates to substance misuse in the Gulf Cooperation Council (GCC) countries following treatment. In the current meta-analysis, we aimed to determine the pooled relapse rate among individuals who use substances in the GCC countries. **Methods:** PubMed/MEDLINE, Google Scholar, ResearchGate, ArabPsyFound, and ArabPsyNet from inception to end of December 2018. The obtained articles were systematically reviewed and meta-analyzed. The statistical analyses followed the binary random-effects model for meta-analysis. **Results:** The systematic review and meta-analysis included nine (K=9) original research studies and involved a total of 12819 respondents in four of the six GCC countries. Six studies (K= 6, N= 3138) had both a sample size and a relapsed number of cases to enter the meta-analysis of pooled relapse rate. Meta-analytic pooling of the point estimates of relapse rate yielded a result of 55.8% (95% CI 33.4% - 78.2%,  $P<0.001$ ), with statistically significant evidence of between-study heterogeneity ( $Q=760.717$ ,  $\tau^2=0.078$ ,  $I^2=99$ ,  $P<0.001$ ). **Conclusion:** Findings from the current systematic review and meta-analysis show that about 56% of individuals who uses substances will relapse following treatment in the GCC countries.

**Key words:** Alcohol, Substance misuse, Gulf Cooperation Council

**Declaration of interest:** None

### Introduction

On a global level, drug dependence remains a public health priority for many countries.<sup>1</sup> It is a significant health problem, which is rapidly growing every year.<sup>2</sup> The United Nations Office on Drugs and Crime (UNODC) states that the prevalence of substance use disorders is consistently increasing universally and continues to be a problem affecting public health.<sup>3</sup> Moreover, it affects the social, economic and moral aspects of a person's life.<sup>4</sup> For the current review, the World Health Organization's (WHO) definition of dependence syndrome as a cluster of physiological, behavioural and cognitive experiences in which the use of a substance or a class of substance takes on a much higher priority for the individual using them than other behaviors that once had greater value.<sup>5</sup> Different social and environmental factors play a role in determining the onset and persistence of drug dependence.<sup>6</sup> The literature suggests that the relapse rate for drug dependence remains high despite efforts to reduce the magnitude of drug dependence.<sup>7</sup>

A decade ago, the World Mental Health Survey solicited by the WHO suggested the Eastern Mediterranean Region (EMR) had a smaller number of its population using drugs compared with the global figures.<sup>8,9</sup> Nonetheless, this can be attributed to the limited studies conducted in the EMR.<sup>8</sup> Religious influences and strict laws prohibiting the supply and use of illicit drugs in the region can also play a role in this variation.<sup>10</sup>

Drug dependence is a growing health problem in the Gulf Cooperation Council (GCC) countries.<sup>11</sup> The GCC has some specifics that give them a unique vagary for drug dependence, namely the predominance of young people in its population structure and is a center of international trade. A detailed narrative review of alcohol and drug dependence in the region is given by AlMarri and Oei (2009). Al Amal Hospital was the first hospital to open primarily for the treatment of drug dependence in Riyadh, Saudi Arabia in 1987.

Furthermore, the same hospital witnessed a 25% increase in the mean number of drugs per individual (from 1.3 to 1.6) from 1986-1996 with a shift from alcohol as the sole substance being used to amphetamine.<sup>12</sup> Drug dependence is present in other GCC countries as well. Heroin was first introduced in the Kingdom of Bahrain in the late 1970s and reached outbreak levels in 1983 when 424 cases of heroin use were reported.<sup>13</sup> On the other hand, in the State of Kuwait, Al-Kandari observed a rise in the number of patients admitted for drug dependence treatment from 386 in 1997 to 779 in 1999.<sup>14</sup> In the United Arab Emirates (UAE), heroin misuse was reported to be greater than alcohol misuse in a study from a psychiatric institution.<sup>15</sup> However, according to recent data, it has been demonstrated that about 42.3% of consumers are addicted to polysubstance rather than a single drug in the UAE.<sup>10</sup>

Obtaining accurate and reliable estimates for the scale of drug dependence relapse is critical to allocate clinical resources for minimizing the risk of relapse and plan and design intervention programs to prevent the recurrence. The relapse rate is covered by many factors including onset, type of drug and consumption. Narimani and Sadeghi predicted relapse as a common outcome at the beginning of drug dependence treatment and noted a rate of approximately 72%.<sup>16</sup> There is also a large body of studies concluding that there are always higher levels of relapse rate in patients who are non-compliant to treatment after rehabilitation.<sup>1,7,17</sup>

The current meta-analysis aimed to: (1) estimate the relapse rate among individuals with drug dependence in the GCC countries after rehabilitation, and (2) identify the risk factors associated with relapse after rehabilitation. Drug dependence relapse is defined as a series of setbacks along the course of recovery that involves the recurrence of use of pathological drug after a period of abstinence.<sup>18</sup> For the current meta-analysis, we identified drug dependence relapse as relapse during or after the first admission to the rehabilitation unit. Various intrapersonal and interpersonal risk factors play a significant role in the likelihood of the occurrence of relapse. These factors were identified and highlighted in the systematic review process. We predicted a relapse rate of around 50% based on the projections offered by experts in the field.<sup>19</sup>

## **Methods**

Preferred Reporting Items for Systemic Reviews and Meta-Analyses (PRISMA) statement was used as a guideline to report this systemic review and meta-analysis.<sup>20</sup>

## **Database searches**

In December 2018, journal articles were collected using an electronic search ProQuest Medical, PubMed/MEDLINE, Google Scholar, ResearchGate, ArabPsyFound, and ArabPsyNet from inception until the end of December 2018. The search team conducted multiple searches, using the following keywords: “Arabian Gulf” OR “Gulf Cooperation Council/GCC” AND “drug addiction”, OR “drug abuse”, OR “drug relapse”, OR “substance relapse”, OR “substance abuse” OR “substance abuse disorder”, OR “substance dependence” OR “relapse after substance abuse”. The review team manually selected and gathered the articles to check if they met the inclusion criteria.

## **Inclusion criteria**

We included all the original articles that mentioned the relapse rate after drug dependence in the GCC countries. They were included if: (1) the publication was in English, (2) the article was published in a peer reviewed journal, (3) date of publication was before 31 December 2018, (4) the article assessed the relapse of drug dependence, and (5) it reported relapse rate among individuals with a history of drug dependence. In the current review, drug dependence is defined by the mental and behavioral disorders due to psychoactive drug dependence of opioids, cannabinoids, sedative-hypnotics, cocaine, stimulants, hallucinogens, volatile solvents, and multiple drug use and use of other psychoactive drugs.

## **Exclusion criteria**

Exclusion criteria were: (1) relapse in alcohol misuse only, (2) relapse rate in tobacco/nicotine users only, (3) case reports or case series, and (4) lack of availability of full-text study.

## **Main outcomes and measures**

The primary finding of the current study was an estimate of the relapse rate among individuals with drug dependence after receiving treatment in GCC countries. Titles and abstracts were screened independently by the review team and were assessed for eligibility. MM, SA, IH, and WM performed initial data extraction. Any mismatch in study eligibility for inclusion in the review was solved through dialogue with the senior reviewer HJ and team agreement. The team agreed to extract the following data from the screened studies: first author, relapse rate, study design, year of publication, country of the study, population type and demographics, sample size, and type of drug abused. Different notable results included mean age, educational level, employment and marital status of the sample in each study. The relapse rate was defined in this review as relapse during or after the first

admission. In some studies, the relapse rate was recalculated to adjust or control for inclusion or exclusion. For example, to exclude the number of cases relapsed for alcohol use only or adjusting the total sample size to those with drug dependence versus those with alcohol misuse.

### **Data synthesis and statistical analyses**

The data were combined in the current meta-analysis using a random-effects model and the DerSimonian–Laird method. We reported the relapse rate and the corresponding 95% Confidence Interval (95% CI). Data were also presented graphically using the Forest plot. An assessment of studies heterogeneity using the I<sup>2</sup> statistic was performed; the value of  $\geq 75\%$  was considered to represent high heterogeneity. Between-study heterogeneity was also assessed in this review by the Cochran (Q) statistic test and tau square ( $\tau^2$ ). A leave-one-out sensitivity analysis was performed by iteratively removing one study at a time to confirm that any single research did not drive our findings. Subgroup meta-analysis was conducted to investigate the influence of country on relapse rate. Meta-analyses were performed using Open Meta Analyst software provided by the Centre for Evidence Synthesis in Health/Center for Evidence-Based Medicine, the School of Public Health at Brown University. Other descriptive statistical analyses were performed using Microsoft Excel.

### **Ethical considerations**

Ethical approval or informed consent were not needed due to the availability of the data in the public domain.

## **Results**

### **Study characteristics**

The systematic review and meta-analysis included nine (K=9) research studies. Nine studies were based on original contributions of data, and one study was an epidemiological review. The nine initial studies involved a total of 12819 respondents in four of the six GCC countries: Kingdom of Saudi Arabia, (KSA) N=6; Kingdom of Bahrain, N=1; United Arab Emirates (UAE), N=1 and the State of Kuwait, N=1. Table 1 provides a summary of the studies examining the relapse rate of drug dependence in these countries. The median sample size for the included studies was 243 (range 40-9404 subjects). The median number of relapsed individuals/cases per study was 145 (range 82–421 subjects). The median age of the respondents was 30 years old, and they were all men. Six studies used a cross-sectional study design; two retrospective studies (medical record review study), one a review and one a case-control design. Most of the studies were published after 2005, covering data between 1986 and 2014.

**Table 1.** Summary of the studies examining the relapse rate of drug abuse in GCC countries

<b>First Author</b>	<b>Publication Year</b>	<b>Research Year/s</b>	<b>Country</b>	<b>Sample Size</b>	<b>Operation definition of relapse</b>	<b>Relapse Cases</b>	<b>Population Type</b>	<b>Mean Age</b>
<i>A Rahim</i>	2005	1986 - 1993	Kingdom of Saudi Arabia	409 substance users	Relapse is operationally defined as readmission to service. No specific time framework.	259	First 3,877 consecutive new admissions	NR
<i>Abalkhail</i>	2001	1996	Kingdom of Saudi Arabia	243 heroin users	Relapse is operationally defined as readmission to service. No specific time framework.	190	Saudi inpatients with heroin and non-heroin addictions	30.3±0.4
<i>AbuMadini</i>	2008	1986 - 2006	Kingdom of Saudi Arabia	9,404	NR No relapse rate was reported in the study	NR	12,743 patients' records were retrieved from Al Amal Hospital	30.1±2
<i>Al-Kandari</i>	2007	NR	Kuwait	237 with complete data	NR No relapse rate was reported in the study	NR	269 individuals with addiction	33±9
<i>AlNahedh</i>	1999	1998	Kingdom of Saudi Arabia	151	Relapse is operationally defined as readmission to service. No specific time framework.	100	Substance users (men) aged 20 years or older	29.5±3.5
<i>Alshomrani</i>	2017	2000 until mid-2014	Kingdom of Saudi Arabia	1862	Relapse is operationally defined as readmission to services AND/OR intake of substance during admission. No specific time framework.	421	All Saudi (2023) therapeutic communities residents admitted since 2000	33.9±NR
<i>Derbas</i>	2001	1998	Bahrain	40	NR No relapse rate was reported in the study	NR	Bahraini patients (men) who used heroin during first week after discharge from the Drug Treatment and Rehabilitation Unit in the Psychiatric hospital	20.8±NR

<i>ElSheikh</i>	2004	NR	Kingdom of Saudi Arabia	105 substance users	Relapse is operationally defined as readmission to service. No specific time framework.	82	180 inpatients in Al Amal Hospital	32.2±NR
<i>Elkashef</i>	2013	2002 - 2011	United Arab Emirates	368	The only available recorded data as a possible indication of a patient's relapse was the number of readmissions per patient. No specific time frame.	100	591 National Rehabilitation Center Emirati inpatients (men)	32.4

NR= Not Reported

Those studies that did not report relapse rate contributed to the systematic review only and not the meta-analysis.

All of the included nine (K=9) studies in this review were based on a specialized unit or center for drug abuse as treatment setting. The details of study settings, therapeutic

approaches, treatment modalities and components are presented in Table 2.

**Table 2.** Systematic summary of the studies of relapse rate among individuals with drug misuse in GCC countries

First Author	Relapse Rate	Study Design	Study Settings and Treatment Modality	Mean Age	Substance Type	Educational Level	Employment	Marital Status	Notes
<b>A Rahim</b>	63.30%	Case-Control	In-patient specialized treatment facility  Al Amal Hospital, Dammam  One month assisted withdrawal/rehabilitation protocol followed by a variable period of aftercare	NR	42% use heroin 19% use heroin and other 3.2% use amphetamines 5.1% use volatiles 1% use cannabis (hashish) 9.3% use multiple drugs	Illiterate 6.8% elementary 36% intermediate 36.8% secondary 16% university graduates 4.4%	13.3% unemployed 5% students 8.7% manual workers 13.1% skilled 33.9% white collar 13.9% soldiers 12.1% businessmen	60.4% single 31.4% married 7.4% divorced 0.8% widowed	Original sample size was 504 but 95 alcohol abusers were excluded from our meta-analysis. Thus, our percentages are manually recalculated.
<b>Abalkhail</b>	78.20%	Cross-Sectional	In-patient specialized treatment facility  Al Amal Hospital, Jeddah  One month assisted withdrawal/rehabilitation protocol followed by a variable period of aftercare. Psychosocial treatment involves individual and family therapy.	30.3±0.4	heroin	45.3% are less than university graduates	52.3% unemployed	7.8% are broken marriage	66 non-heroin addicts 23 on volatiles 25 on amphetamines 18 on alcohol
<b>Abu Madini</b>	N/R	Cross-Sectional	In-patient specialized treatment facility.  Al Amal Hospital, Dammam  One month assisted withdrawal/rehabilitation protocol followed by a variable period of aftercare.	30.1±2	33.1% use heroin 35.7% use cannabis 34.7% use amphetamines 10.2% use sedatives 3.8% use volatiles 2.4% use unspecified polydrug	7.3% illiterate, 37.7% primary education 35.8% intermediate education 14.9% secondary education 4.8% university	22.1% are unemployed, 3.2% are students, 8.4% are manual workers, 13.3% are skilled, 30% are clerks, 0.8% are professionals, 13.4% are business, 8.9% are military	60% are single, 33.1% are married, 6.3% are divorced, 0.4% are widowed	None

<b>Al-Kandari</b>	N/R	Cross-Sectional	In-patient services. Psychological Medicine Hospital, Kuwait.  No details were provided on the treatment modalities by the authors.	33±9	78% use heroin 64% use marijuana hashish 32% use cocaine 26.3% use hypnotics 7% use solvents	1.7% are illiterate, 6.3% are primary educated, 38% are intermediate educated, 32.5% are secondary educated, 3.8% are technical qualification, 16% are university graduates, 1.7% are postgraduates	N/R	37.98% single 42.2% married 19.4% divorced 0.42% widowed	The completed questionnaires were from 30 inpatients and 207 outpatients. Only 1 (0.8%) of the sample were women.
<b>AlNahedh</b>	66.20%	Cross-Sectional	In-patient specialized treatment facility.  Al Amal Hospital, Riyadh  One-month assisted withdrawal/rehabilitation protocol followed by a variable period of aftercare. Psychosocial treatment involves individual and family therapy.	29.5±3.5	23.12% use sedatives 18.75% use heroin, 10.63% use cannabis/hashish 9.38% sniff glue 14.38% use a combination of two or more substances	47% had 12 years of schooling, 34% were university educated	45.2% employed 54.8%unemployed	88.7% married 11.3% unmarried	Original sample size was 160, 95% provided usable response
<b>Alshomrani</b>	22.60%	Retrospective / Record Review Study	A residential service in the form of therapeutic community (TC). TC is long-term treatment (drug-free) modality for addiction.  The focus of rehabilitation through social learning and a family model, with main goals of sustaining abstinence and	33.9±NR	35.8% use opioids 15% use cannabis (hashish) 11.9% use hashish and amphetamines 2.7% use amphetamines and alcohol 3.6% use hashish and alcohol 11.1% use amphetamines 0.9% use hashish (cannabis) and opioids, 10.6% are polydrug abusers and 0.4 are using unspecified drugs	0.7% university education 38.5% secondary education 35.5% intermediate education 21% primary education 4.3% illiterate	70.8% unemployed 25.8% employed 2.5% students 0.9% retired	65.2% single 24.2 married 10.6% divorced	None

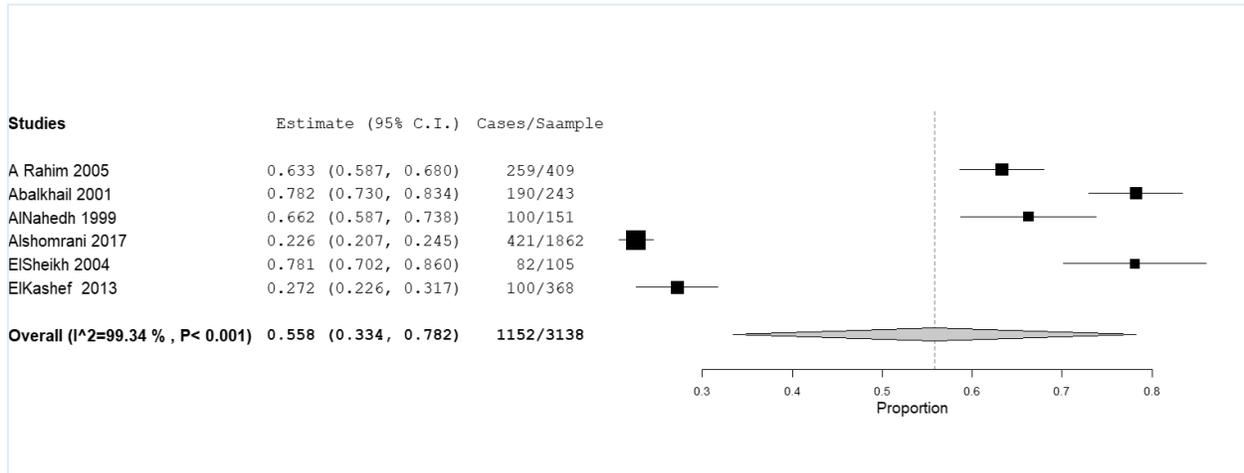
			<p>improving physical, psychological, social, and spiritual health.</p> <p>The essential components of TCs include social responsibility enhancement, peer feedback about each resident's behavior, rule model practice, effective interactive relationships between the residents and shared community with positive communication.</p>						
<b>Derbas</b>	N/R	Cross-Sectional	<p>In-patient specialized treatment facility.</p> <p>Almoayyed Drug Rehabilitation Unit, Psychiatric Hospital Bahrain</p> <p>One-week (up to 10 days) assisted withdrawal protocol. This is followed by 4-6 week of intensive rehabilitation activities that emphasize on skill acquisition.</p>	20.8± NR	heroin	<p>2.5% no formal education 22.5% primary education 15% intermediate education 47.5% secondary education 12.5% university</p>	<p>52.5% unemployed 45% employed 2.5% retired</p>	<p>52.5% single 40% married 7.5% divorced</p>	None
<b>EISheikh</b>	78.10%	Cross-Sectional	<p>In-patient specialized treatment facility.</p> <p>Al Amal Hospital, Jeddah</p>	32.2± NR	heroin	<p>64% had completed 6-9 grades of education</p>	<p>75.2% unemployed</p>	<p>66.7% single and divorced</p>	Admissions and relapses more than four times

			One month assisted withdrawal/rehabilitation protocol followed by a variable period of aftercare. Psychosocial treatment involves individual and family therapy.						
<b>Elkashef</b>	27.2%	Retrospective / Record Review Study	<p>Inpatient treatment/ specialized National Rehabilitation Centre.</p> <p>During the inpatient stay, the treatment plan could include assisted withdrawal, medications and behavioral therapy in the form of individual or group therapy. Patients also undergo urine drug screening on a regular basis to ensure compliance.</p>	32.4	22.5% use Tetrahydrocannabinol, benzodiazepines, Amphetamines, Inhalants 16.3% use heroin	1.6% illiterate 20.9% primary education 28.3% middle school education 33% secondary education 16.2% post-secondary education	33.3% employed/students 60.3% unemployed 6.4% retired	42% married 43.7% single 13.1% divorced 0.3% widowed 0.9% separated	Relapse and A1:P11 rate were 60% in 2003, declined to 20% in 2010. Of 589 patients, 221 (38%) were not actually admitted. A total of 268 (46%) had only one admission, 10% were admitted twice and 7% were admitted three times or more

**Relapse to drug dependence in the GCC after rehabilitation**

Six studies (K=6, N=3138) had both a sample size matching the inclusion criteria and a relapsed number of cases (i.e., relapse rate) to enter the meta-analysis of pooled relapse rate. The studies were distributed equally in terms of weight, each approximately 16%. The

statistical analysis followed the binary random-effects model for meta-analysis. Meta-analytic pooling of the point estimates of relapse rate yielded a result of 55.8% (1152/3138 relapsed cases, 95% CI 33.4%- 78.2%) SE=0.11, P=<0.001), with statistically significant evidence of between-study heterogeneity (Q=760.717,  $\tau^2=0.078$ , I<sup>2</sup>=99, p<0.001). Forest plot of the meta-analysis is shown in Figure 1.

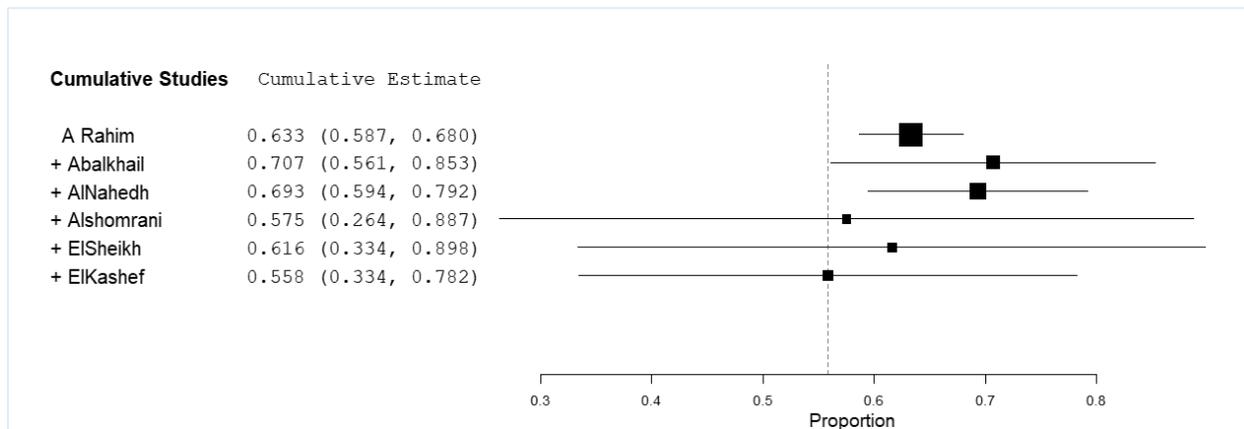


**Figure 1.** Meta-analysis of relapse to drug abuse in the GCC countries following treatment

**Sensitivity analysis and subgroup analysis**

The detailed results of the systematic review process are presented in Table 2 and the sensitivity analysis in Figure

2. The raw relapse rate estimates reported by individual studies ranged from 27.2% to 78.2%. Sensitivity analysis demonstrated that the research affected the overall pooled point prevalence estimate by about 5%.



**Figure 2.** Sensitivity analysis of relapse to drug abuse in the GCC countries following treatment

of 27.2% (95% CI 22.6%–31.7%) SE= 0.023), which is lower than the studies conducted in the KSA, which had a pooled relapse rate of 61.6% (95% CI 33.4%-89.8%) Q=745.39, P=<0.001, I<sup>2</sup> = 99.46%.

A subgroup meta-analysis (Figure 3) shows that the study which was conducted in the UAE had a low relapse rate

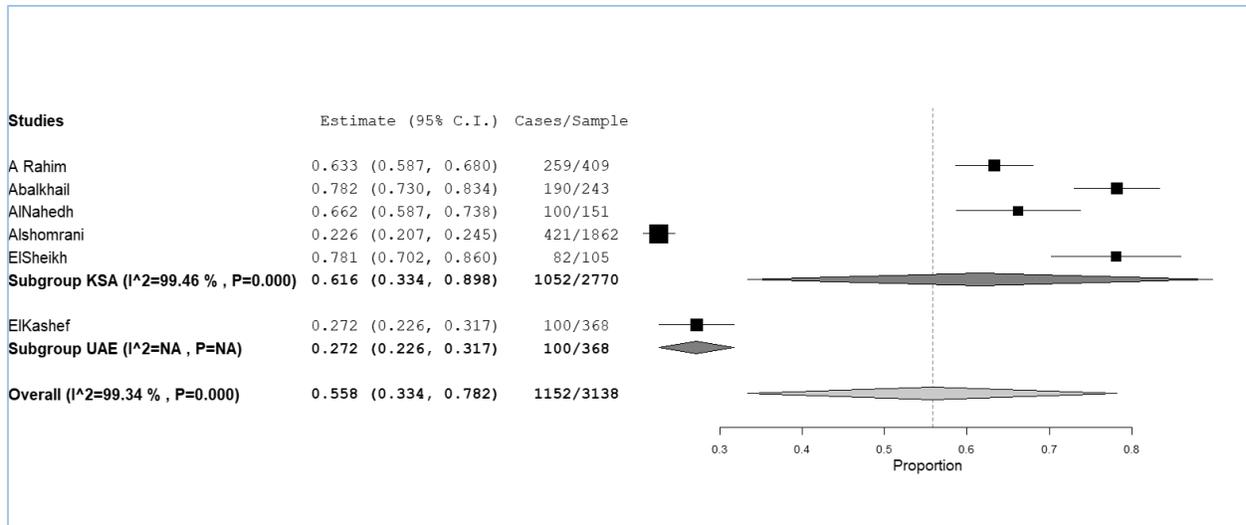


Figure 3. Subgroup meta-analysis of relapse to drug abuse in the GCC countries following treatment by country

### Risk factors associated with relapse

The general findings from the studies are suggestive that most respondents were opioid users and had the highest relapse rates. Most of the individuals misusing drugs were from lower educational levels namely intermediate and secondary schools. Four of the studies showed higher relapse rates among the unemployed suggestive that financial instability is a common risk factor for relapse. All the analyzed studies also concluded that marital status is not significantly related to relapse. Further details about the risk factors described in the study are available in Table 2.

## Discussion

The current review aimed to provide an estimated point of the risk of relapse to drug dependence in the GCC countries after treatment using meta-analytic pooling techniques. The principal outcome of this review was that 56% of individuals relapsed following treatment in these countries. Based on the literature it is challenging to determine a commonly acceptable estimate of the relapse rate among individuals with drug dependence history. This is perhaps due to the diversity of definitions of remission, recovery and relapse, types of drugs used, characteristics of the population being studied and follow-up periods.<sup>21</sup> For example, earlier studies document that

relapse is inevitable. Vaillant (1988) found that approximately 95% of his clinical sample relapsed within

two years of hospital discharge.<sup>22</sup> Recent data from clinical trials reveals that 40% to 60% of individuals with drug dependence relapse within one-year post-treatment.<sup>23</sup> Furthermore, while relapse is one outcome other outcomes such as mortality, particularly from an overdose, should also be considered. In our review, most cases had multiple drug use and use of other psychoactive substances; some studies stratified their analysis by type of drug misused. For example, a study from South Africa reported that the relapse rate for cannabis users was 50% and that of cocaine or heroin users, 65%.<sup>24</sup> A relapse rate of 60% was obtained in the United Kingdom among heroin users.<sup>25</sup> India had a higher relapse rate after drug dependence treatment, which ranged from 72% to 88% after one to three years post-treatment.<sup>26</sup> On the other hand, China had lower relapse rates that ranged from 1.2% to 8% within two months and 14.8% to 24.4% within two years. This variation between countries needs to be further examined and addressed in a global meta-analysis.

A study by Alshomrani *et al.* found that the frequency of daily use of drugs was two to four times daily.<sup>27</sup> More frequent daily use is an indicator of the severity of the dependence and is indeed a predictor for relapse. Abalkhail *et al.* collected data about the intake duration of drug use and found that heroin users had a more

extended period of intake than non-heroin users (5.6-6.0 years vs. 3.2-5.4 years respectively).<sup>28</sup> For some patients, dependence becomes chronic, with periodic relapses even after rehabilitation and long periods of abstinence. This implies that long-term and ongoing support could be offered to patients with a high risk of relapse.

One meta-analysis, identified a study conducted in KSA in which 60% of patients who had completed the rehabilitation program relapsed in the first 17 months.<sup>29</sup> From the nine studies included in the current meta-analysis, the data suggest that patients with drug dependence might be vulnerable to many psychosocial and emotional factors that made them relapse. Negative emotions being the most common and the most impactful. According to the reviewed literature, peer pressure, social problems, family problems, availability, affordability, improper health education, lack of supporters are risk factors as well. Education and employment also appeared to be important risk factors whereby those cases who graduated from university had the lowest dependence and relapse rates. Furthermore, relapse rates were greater in unemployed individuals.

Our review gave the views of men due to the paucity of studies on women. Future research needs to include women. There are many contributing factors for why women were not included in the current review: (1) only a few of women are admitted in the rehabilitation center; (2) the Arabian Gulf tradition and culture are protective of women who thus are not vulnerable to some of these risk factors; (3) Arab women who use drugs are likely to experience denial within their families and members might also tend to decline help out fear of jeopardizing the patient's reputation; and, (4) the rates of drug dependence are currently lower in women than in men.<sup>30</sup>

## Limitations

There are two main limitations in the current meta-analysis. First, the scarcity of studies on relapse rates among individuals with drug dependence was limited to four GCC countries only. More research is needed in the region for a better-pooled estimate. Secondly, due to the nature of meta-analysis, certain variables that might explain the risk of relapse were found in very few studies. This limited the way in which meta-regressions could be used to predict the factors associated with a higher relapse rate. For example, the age of first substance use, years of substance misuse, previous detoxifications, the duration between rehabilitation, relapse, and frequency of daily use. Future research is encouraged to utilize standardized

research tools that would unify data presentation and manipulation.

## Conclusion

Findings from the current systematic review and meta-analysis show that 56% of individuals relapse to drug dependence after rehabilitation in GCC countries. The main risk factors for relapse after rehabilitation were history of opiate misuse, negative emotions, low educational level, and unemployment. Future studies are needed to identify, prevent and address the relapse rate in this population.

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## البحث

قدمت بتعدد شرايط متعاطي الامخدرات احدى الشركات للصحة العامة، ويهدف علاجها الى تصحيح نمط الحياة من اللجوء الى تعاطي المخدرات وتباعد شرايط تعاطي المخدرات لتباعد لبحوثي خطر الانتكاسة والرجوع الى التعاطي بعد رفض افنترة العلاج من الإدمان بل جز عدد قليل من الدرسلات التي تعالج شرايط الانتكاسة والعودة الى تعاطي الامخدرات بعد العلاج الخبيثي دول مجلس التعاون الخليجي. لهذا، هدف هذا البحث لتلوي الى تصحيح معدل الانتكاسة الى حد ما لدى الأفراد الذين يعلنون عن تعاطي الامخدرات انفسهم دول مجلس التعاون الخليجي. **منهجية الدرسلات/طرق البحث** يتم البحث في قواعد البيانات البحثية PubMed/MEDLINE و Google Scholar و ArabPsyFound و ArabPsyNet في ملت مالها حتى على قش مر ديسمبر 8102 بتدمت مراجعة للمقالات التي يتم جمعها

بشكل منهجي وتم إجراء التحليل للتدوي. كما انطبق التحليل الإحصائي نموذج الآثار العشوائية للتطبيق والتحليل للتدوي. **النتائج:** شملت المراجعة الـ 9 هيبة والتحليل للتدوي يتسع درجتها التحليلية لـ 9 = (شملت ما مجموعه) 08209 من المشاركين في أبعده من دول مجلس التعاون الخليجي الست. كملت وقال كست دريلت) ك = 6، ن = 3138 (تنضم من حجم العينة وعدد التكرارات من الاحتمال لتدوي لإدخالها التحليل للتدوي معدل التكرار للتدوي. أدت حيج التحليل للتدوي ثقبيرات معدل التكرار التي حيج فماده أن مانيته 2 ... (% ... 78.2%، و مدى الثقة 3 CI = 9. % ومدى الثقة 1.110 < P، مع وجود ألة ذات دلالة إحصائية حيج عدم التكرار بين الدريلت) س = 761.707،  $t^2 = 0.078$ ،  $P = 0.078$ ،  $I^2 = 99$ ،  $P < 1.110$ ،  $P < 1.110$ ، مع وجود الـ هيبة والتحليل للتدوي إلى أن حوالي 6.7% من الأفراد المدمنين حيج المخرات حيج دون الـ حيج دول مجلس التعاون الخليجي.

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## Substance Use Disorders among Psychiatric Outpatients in the Kurdistan Region of Iraq

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مضطربات لمرتخدام ل مواد لمدردقبن لمرضى النفسوي في ولاية كردستان - لالعراق

### Abstract

**O**bjective: The prevalence of substance use disorders among psychiatric patients worldwide is a well-known and highly prevalent problem; however, in the region of Kurdistan and in Iraq, far less is understood about it. The current study aimed to estimate the prevalence of comorbid substance use disorders in psychiatric outpatients in the Kurdistan region. **Methods:** Designed as a cross-sectional study, it was undertaken over six months from 21 April 2015 to 21 October 2015. Two hundred and fifty men and women diagnosed with psychiatric disorders who were being seen at the outpatient psychiatric clinics in Hawler, Slemani, and Duhok, were compared with 250 individuals without any psychiatric disorder. All participants were selected using simple random sampling. Substance use disorder was assessed using the Mini-International Neuropsychiatric Interview. Statistical analysis was done using SPSS. **Results:** Findings indicate that 12% of adult psychiatric patients experience symptoms that are comorbid with substance use disorders (4% alcohol use disorder; 8% psychoactive substance use disorder), whereas none from the control group had substance use disorder. Substance use disorder is highly prevalent among patients diagnosed with phobia, Major Depressive Disorder (MDD), and schizophrenia. **Conclusion:** High prevalence of substance use disorders was found among psychiatric patients attending outpatient units in the Kurdistan region of Iraq. Early detection and treatment of dual diagnosis are warranted.

**Key words:** Substance use disorders, Comorbidity, Alcohol dependence, Schizophrenia, Kurdistan, Iraq

**Declaration of interest:** None

### Introduction

According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) of the American Psychiatric Association (2000), there are two types of substance use disorders (SUD); substance dependence and substance abuse. "The essential features of Substance Dependence is a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems",<sup>1</sup> and "The essential feature of Substance Abuse is a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances".<sup>1</sup> Substances include alcohol and non-alcohol psychoactive substances or illicit drugs, such as marijuana, cocaine, heroin, hallucinogens, inhalants, and the nonmedical use of prescription-type psychotherapeutic drugs.<sup>2</sup>

World Health Organization (WHO) defines psychiatric disorder as the existence of a clinically recognizable set of symptoms or behavior associated in most cases with distress and with interference with personal functions.<sup>3</sup> Dual diagnosis is the co-occurrence of substance use disorder and other mental health conditions when at least

one disorder of each type can be established independent of the other and is not simply a cluster of symptoms resulting from [a single] disorder.<sup>4</sup> Although this association has been known for 30 years, it was only in the last two decades that it has increasingly become a source of interest largely because high prevalence has been reported in the literature and the negative influence of such comorbidity may have on the evolution and prognosis of both disorders.<sup>5</sup>

In general, patients with mental health disorders have an increased incidence of substance misuse when compared to the general population.<sup>6</sup> Relative to the general population, individuals with severe psychotic disorders have increased risks for smoking, heavy alcohol use, heavy marijuana use, and recreational drug use.<sup>7</sup> A cross-sectional survey was conducted to document alcohol and substance use in 207 successive outpatients presenting to a psychiatric continuing care facility in a large Canadian city, excluding nicotine, 44.9% met criteria for lifetime and 14.0% for current misuse/dependence.<sup>8</sup> Spehrmanesh *et al.* conducted a study at Kashan Psychiatric Hospital in Iran, to determine the prevalence of comorbidity and pattern of substance misuse among hospitalized psychiatric patients. Their findings showed that 36.7% of patients had substance use comorbidity.<sup>9</sup>

The comorbidity rate of illicit substance misuse and psychiatric disorders in Iraq is far from clear and there is very little data about the problem. Also, little is known about the epidemiology of substance misuse among psychiatric patients in the Middle East, including in Iraq. A study by Al-Hemiary *et al.*<sup>10</sup> is currently the only published study on substance use and comorbidity in the Kurdistan region, which was conducted in the psychiatric unit of Slemani General Hospital in 2007. From the total inpatient population, the study identified seven (11%) patients, all of whom were men, with drug dependency issues.

Research in the field of substance misuse and dependence in Iraq remain scant<sup>11,12</sup> despite the use of substances being a growing challenge in Arab countries. Data from this field will be of great importance.<sup>13</sup> The current study was conducted to examine the prevalence of substance use disorder (SUD) among adult psychiatric patients in the Kurdistan region. Results are likely to be directly relevant to the mental health services in Kurdistan and contribute to the improvement of services for the region.

## **Methods**

### ***Study Design and Setting***

The current study is an epidemiological and quantitative study using a cross-sectional and control group. It was conducted in the Kurdistan region of Iraq.

Kurdistan is situated in the northern part of the Republic of Iraq. In 2005, the region was granted autonomy under Iraq's new Constitution and it is now run by the Kurdistan Regional Government.<sup>14</sup> The region comprises parts of four governorates of Hawler (Erbil), Slemani, Duhok, and Halabja.<sup>15, 16</sup> The people living in Kurdistan are Kurd as well as Assyrians, Chaldeans, Turkmen, Armenians, and Arabs. The population is approximately five million.<sup>15</sup>

The current study was conducted with patients who visited outpatient psychiatric consultation units of the Hawler Psychiatric Hospital, Ali Kamal and Azady Teaching Hospital in Erbil, Slemani, and Duhok, respectively across a six-month period from 21<sup>st</sup> of April to 21<sup>st</sup> of October 2015.

### ***Participants***

The case group consisted of 250 adult patients of both genders diagnosed with psychiatric disorders that were seen in outpatient psychiatric units in Erbil, Slemani, and Duhok. Inclusion criteria consisted of signing the written informed consent to participate in the research and having psychiatric disorders.

The exclusion criteria include:

- Patients with a primary diagnosis of substance use disorders.
- Age less than 18-year-old.
- Patients diagnosed with Neurocognitive Disorders.
- Primary diagnosis of personality disorders or intellectual disability.

A control group of 250 patients was age-matched with the case group, but had not been diagnosed with any psychiatric disorder. The control group were recruited from the same hospitals where the cases were taken.

### ***Sampling method***

A stratified sampling method was applied by dividing the total sample according to governorates into three zones: Erbil, Slemani, and Duhok. Participants for both conditions were allocated to groups of 90, 90, and 70 respectively for each zone according to the size of the population living in each governorate. Control and case group participants were then selected by using a simple random sampling method. Patients were randomly referred from the specialists to the interviewer. In our sampling, every third case was taken.

### ***Substance use disorder diagnosis***

The Mini International Neuropsychiatric Interview (MINI) models J and K were used as a tool for diagnosing Alcohol Use Disorder (AUD) and Psychoactive Substance Use Disorder (PSUD) respectively. Each module supports the detection of dependence on/misuse of alcohol or psychoactive substances. To diagnose each disorder, the person must have used alcohol or substances within the past 12 months. Alcohol or substance dependence was diagnosed if the participant provided a 'yes' response to three or more of seven questions. Similarly, alcohol or substance misuse was diagnosed if the subject answered 'yes' to one or more of four questions.<sup>1, 17</sup>

### ***Ethical considerations***

The Scientific Research Units of the Kurdistan Board for Medical Specialties (KBMS) approved the current study protocol. Formal consent was obtained from the hospital chief of all three hospitals taking case and control groups. Before the interview, participants provided written consent having received an explanation as to the purpose of the study and their right to withdraw and have satisfactory responses to any questions raised.

Information on substance misuse was provided to all participants in a non-threatening and supportive atmosphere with all receiving assessment on a 1:1 basis in a confidential and private room to ensure the best opportunity for them to respond.

**Statistical analysis**

All data were registered in a special inventory and analyzed by using Statistical Package for the Social Sciences (SPSS version 21.0 for Windows).

Chi-squared was used to model the probability of substance use disorder based on case/control status, adjusted for all demographic data. Also, significance of association between various variables and substance use was tested using the Chi-square test statistic ( $\chi^2$ ) and a finding of  $p < 0.05$  was considered statistically significant.

**Results**

**Demographic characteristics**

Demographic details of patient and control groups are shown in Table 1. Case group participants were significantly younger than controls (mean age of patients were 36.82 years and controls were 41.15 years;  $p=0.004$ ).

There was a difference between both groups according to marital status and employment. Most of the control group were married 173 (69.2%) compared to cases 139 (55.6%); in the control group only one (0.4%) participant was separated or divorced, while in the case group it was about 16 (6.4%), the results statistically significant ( $p < .001$ ). Results for occupation were significant ( $p=0.03$ ), 30 (12%) from the control group and 50 (20%) from the case reported being unemployed. There was no

significant difference in gender, educational level, residency, and socioeconomic state.

**Prevalence of psychiatric disorders**

Figure 1 shows a percentage of psychiatric disorders seen by the researchers in outpatient units, the most common disorder was Major Depressive Disorder (MDD), which was found in 103 (41.2%) of all cases followed by schizophrenia in 65 (26%) participants, Bipolar Disorder in 19 (7.6%) participants and Generalized Anxiety Disorder (GAD) in 18 (7.2%) participants.

**Prevalence among control and patient group**

The prevalence rate of SUD was higher in psychiatric patients than in controls; 30 (12%) from case group were diagnosed as having SUD while in the control group there were no SUD diagnoses, which was a statistically highly significant result,  $p < 0.001$  (Table 2).

**Prevalence of comorbidity**

Thirty (12%) patients met diagnostic criteria for current substance use disorders with 10 (4%) patients diagnosed as having alcohol use disorder (AUD) and 20 (8%) as having psychoactive substance use disorder (PSUD). (Table 2).

**Comorbidity across psychiatric disorders**

Only four psychiatric disorders were comorbid with SUDs, and they were phobia, MDD, schizophrenia, and Bipolar Disorder. Sixteen (15.5%) of all MDD cases were comorbid with SUD, 11 (16.9%) patients with schizophrenia, (5.3%) with Bipolar Disorders and (40%) with phobia ( $p < 0.01$ ). Details of the results are outlined in Tables 3 and 4.

**Table 1.** Demographic characteristics of case and control groups

Characteristic	Case Group (n = 250) n (%)	Control Group (n = 250) n (%)	p value
<b>Gender</b>			> 0.1
Male	121 (48.4%)	118 (47.2%)	
Female	129 (51.6%)	132 (52.8%)	
<b>Educational Level</b>			> 0.1
Illiterate	84 (33.6%)	93 (37.2%)	
Primary school	91 (36.4%)	90 (36%)	
Secondary school	40 (16%)	29 (11.6%)	
University\institute	34 (13.6%)	35 (14%)	
Higher education	1 (.4%)	3 (1.2%)	
<b>Occupation</b>			0.032
Unemployed	50 (20%)	30 (12%)	
Housewife	85 (34%)	89 (35.6%)	

*Substance Use Disorder among Psychiatric Outpatients in Kurdistan*

Student	22 (8.8%)	13 (5.2%)	
Skilled Work	36 (14.4%)	36 (14.4%)	
Unskilled Work	53 (21.2%)	74 (29.6%)	
Retired	4 (1.6%)	8 (3.2%)	
<b>Marital status</b>			< 0.001
Single	84 (33.6%)	60 (24%)	
Married	139 (55.6%)	173 (69.2%)	
Divorced	10 (4%)	0 (0%)	
Separated	6 (2.4%)	1 (0.4%)	
Widow\widower	11 (4.4%)	16 (6.4%)	
<b>Socioeconomic status</b>			> 0.1
Low	143 (57.2%)	142 (56.8%)	
Medium	102 (40.8%)	100 (40%)	
High	5 (2%)	8 (3.2%)	
<b>Governorate</b>			> 0.1
Hawler	89 (35.6%)	88 (35.2%)	
Sleman	87 (34.8%)	89 (35.6%)	
Duhok	74 (29.6%)	73 (29.2%)	
<b>Residency</b>			> 0.1
Central city	146 (58.4%)	156 (62.4%)	
Peripheral city	89 (35.6%)	87 (34.8%)	
Village	15 (6%)	7 (2.8%)	
<b>Type of religion</b>			> 0.1
Muslim	245 (98%)	246 (98.4%)	
Yazidism	5 (2%)	4 (1.6%)	
<b>Ethnicity</b>			> 0.1
<i>Kurdish</i>	248 (99.2%)	250 (100%)	
<i>Turkish</i>	1 (0.4%)	0 (0%)	
<i>Arabic</i>	1 (0.4%)	0 (0%)	

**Table 2.** Prevalence of substance use disorder (SUD) among patient and control groups

Type of SUD	Patient Group no. (%)	Control Group no. (%)	p value
Substance Use Disorder	30 (12%)	0 (0%)	< 0.001
AUD*:	10 (4%)	0 (0%)	0.001
Alcohol Dependence	6 (2.4%)	0 (0%)	0.014
Alcohol Abuse	4 (1.6%)	0 (0%)	0.045
NASUD*:	20 (8%)	0 (0%)	< 0.001
Substance Dependence	19 (7.6%)	0 (0%)	< 0.001
Substance Abuse	1 (0.4%)	0 (0%)	> 0.1

\*AUD: Alcohol Use Disorder, NASUD: Non-Alcohol Psychoactive Substance Disorder

Note: In our sample there were no patients diagnosed with both AUD and NASUD.

**Table 3.** Prevalence of substance use disorders based on type of psychiatric disorders

Psychiatric Disorder	Substance use disorder		p value
	No SUD No (%)	SUD No (%)	
MDD	87 (84.5%)	16 (15.5%)	0.087
Schizophrenia	54 (83.1%)	11 (16.9%)	
Bipolar Disorder	18 (94.7%)	1 (5.3%)	
Phobia	3 (60.0%)	2 (40%)	

MDD: Major Depressive Disorder. SUD: Substance Use Disorder

**Table 4.** Psychiatric disorder comorbidities with Substance Use Disorder types

Psychiatric Disorders	Alcohol Dependence no (%)		Alcohol Misuse no (%)		Substance Dependence no (%)		Substance Misuse no (%)	
	No	Yes	No	Yes	No	Yes	No	Yes
MDD	99 (96%)	4 (4%)	98 (99%)	1 (1%)	93 (90%)	10 (10%)	98 (99%)	1 (1%)
Schizophrenia	64 (98%)	1 (2%)	61 (95%)	3 (5%)	58 (89%)	7 (11%)	64 (100%)	0 (0%)
Bipolar Disorder	19 (100%)	0 (0%)	19 (100%)	0 (0%)	18 (95%)	1 (5%)	19 (100%)	0 (0%)
Phobia	4 (80%)	1 (20%)	5 (100%)	0 (0%)	4 (80%)	1 (20%)	5 (100%)	0 (0%)

p value for all the results is > 0.1

MDD: Major Depressive Disorder. SUD: Substance Use Disorder

## Discussion

The current study found a 0% prevalence rate for SUD in the control group, which was lower than the data from the Iraq Mental Health Survey<sup>18</sup> in which lifetime prevalence of SUD was reported to be 0.99%; it is also lower than other studies in Iraq<sup>19</sup> and elsewhere in the world.<sup>2,12,13,20</sup> In the Kurdistan region, some studies were with specific populations and findings were also higher than those in the current study.<sup>11,21,22</sup> This inconsistency can be explained by the small sample size recruited to the current study; also, during the data collection process many cases from outpatient clinics were purely SUD, but they were not taken as control nor as a case because they were asking for treatment and we could not regard them as a control because our study recruitment method was simple random sampling. Although in the control group many persons were using substances or drinking alcohol, they did not fulfill the diagnostic criteria for SUD. Finally, we predicted that some had declined to tell us the issues related to SUD probably due to social barriers or stigma.

Mariana *et al.* highlighted many protective factors against SUD in Arab societies. It appears that the Kurdistan region shares many of these factors, including having strict laws for those who use illicit substances. Further, alcohol and substance use are forbidden by the Islamic religion and thus the application of faith practices and implementation of parental control are common deterrents.<sup>12</sup>

Results for comorbidity of psychiatric disorders and SUD highlighted in the current study are comparable to those reported in other studies.<sup>8,10,23,24</sup> Results were consistent with Al-Hemiary *et al.*<sup>10</sup> who found comorbidity of drug dependence with psychiatric disorders was 11% for psychiatric inpatients in Slemani. Similarly, Ponizovsky *et al.*<sup>24</sup> found that 14% of patients with severe mental illness in Israel were diagnosed as having SUD; however, prevalence was lower than studies conducted in the United States (US),<sup>7,25,20,26</sup> United Kingdom (UK),<sup>27</sup> Spain,<sup>5</sup> Africa,<sup>6</sup> Israel,<sup>28</sup> India<sup>29</sup> and Iran.<sup>9,30</sup> Comorbidity for

psychiatric disorders and any SUD in these studies ranged from 20% in India<sup>29</sup> to 75% in the US.<sup>26</sup>

There are several possible explanations for such variance. First, methodologies for similar research to the current study do, in fact, differ in terms of design<sup>26</sup> setting,<sup>6,9,28</sup> and sampling.<sup>27</sup> Second, inclusion criteria also differ; for example, some studies with similar research aims involved patients who experienced severe psychiatric symptoms,<sup>7,25</sup> or specific psychiatric disorders.<sup>20</sup> Third, SUD, as a stand-alone difficulty or as comorbid with other conditions, is not widely reported in the Kurdistan region compared with other places.<sup>12,18,19</sup> Fourth, the current study exclusion criteria were broad and excluded personality disorders in which SUD comorbidities are more common.<sup>5,6,20,28</sup> Fifth, we examined the prevalence of comorbidities whereas many other studies have examined current or recent and lifetime substance use disorders.<sup>6, 24, 25</sup>

The higher prevalence of SUD among psychiatric patients than healthy individuals is consistent with other studies comparing these two groups.<sup>12, 20, 23</sup>

In our sample only four psychiatric disorders (MDD schizophrenia, phobia and bipolar disorder) are comorbid with SUD, which is comparable to other studies.<sup>4,7,9,23,30,31</sup> Sepehrmanesh *et al.* concluded that the highest rate of substance use was found among patients with mood disorders (42.8%) compared with other disorders.<sup>9</sup> Twelve-month drug dependence in the US remained positively and significantly related to each specific mood disorder - except Bipolar II disorder.<sup>20</sup>

Hartz *et al.* in a study of severe psychiatric disorders found that the prevalence of various degrees of substance use was much higher among individuals with schizophrenia and bipolar disorder with psychotic features.<sup>7</sup> Recent studies have demonstrated that up to 50% of individuals with schizophrenia have either alcohol or illicit drug dependence,<sup>31</sup> but in the current study SUD was present in only 16.9% of patients with schizophrenia.

Swendsen *et al.* concluded that five of seven anxiety disorders - panic, specific and social phobia, PTSD, separation anxiety were predictive of at least one form of substance dependence.<sup>32</sup> This is comparable to our results in that 40% of patients with phobia were diagnosed as having SUD.

When interpreting the current findings, several limitations of the study method should be considered. First, use of a sample of outpatients may limit generalizations to all adult psychiatric patients. Second, diagnoses of substance use disorder are difficult due to the nature of the patients' illnesses and legal consequences, and this limits the

estimation of the prevalence of these disorders in the general population and in psychiatric patients. Third, the current study lacked biological testing of SUD. Fourth, the control group was not entirely matched for age, occupation and marital status.

## Conclusions

The current study provided a convincing picture of the association between common psychiatric disorders and substance use disorders. It documents the high prevalence of SUDs among psychiatric patients attending outpatient units in the Kurdistan region of Iraq. Comorbidities were found in 12% of all cases. As relates to psychiatric disorders, phobia, MDD and schizophrenia were more closely associated with SUDs.

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## Posttraumatic Stress Disorder and Resilience among Palestinian Adolescents in the Gaza Strip

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اضطراب كتر ب مبعء لرضح و لصد مود لفس ي لى لمر ا قون لصل طريون في ق طاع غزة

عيسى اليبويني، عبد العزيز موسى ثابت

### Abstract

**Objective:** The current study investigated posttraumatic stress disorder and resilience among adolescents in the Gaza Strip after the 52-day war in 2014. **Method:** N=408 adolescents, aged between 13 and 18 years, were recruited from the five governorates of the Gaza Strip with the help of local community-based organizations. Four self-report questionnaires were completed, including a sociodemographic questionnaire, the Gaza Traumatic Events Checklist, the PTSD Scale-DSM-IV, and Child and Youth Resilience Measure. **Results:** The most frequently reported traumatic experience was seeing mutilated bodies on television. Nearly half of the participants had experienced at least 10 traumatic events and 19.1% showed full criteria of PTSD. Getting an education was recorded as the most influential factor in the development of resilience. The total number of experienced traumatic events was positively correlated with PTSD and negatively correlated with resilience. PTSD was negatively correlated with resilience factors. **Conclusion:** Adolescents living in armed conflict zones are at risk of experiencing traumatic events, which can lead to PTSD. Resilience plays a significant role in reducing the negative effect of trauma and PTSD. Further investigation, particularly on resilience factors, is required.

**Keywords:** Trauma, PTSD, Resilience, Adolescents, Gaza Strip, War

**Declaration of interest:** None

### Introduction

Armed conflicts have been associated with a wide range of adverse effects on mental health among conflict-affected populations. They sorely affect the social determinants of mental health and wellbeing, including family and personal contacts, access to basic needs and education, and morality and spirituality.<sup>1</sup> Despite ample evidence of the remarkable resilience of individuals who are frequently exposed to wars and conflicts, many will suffer from psychological problems.<sup>2</sup> Those who are exposed to physical threat and environmental instability report numerous psychological reactions including fear, anger, helplessness, isolation, irritability, nervousness, and confusion.<sup>3</sup> Moreover, exposure to serious traumatic events may result in behavioral and emotional problems, particularly among children and adolescents,<sup>4</sup> and diagnosable mental health problems such as depression, anxiety, and Posttraumatic Stress Disorder (PTSD).<sup>5,6</sup>

PTSD is a mental health condition that can occur after exposure to serious traumatic events and it might happen as a result of experiencing or witnessing a single traumatic event or a series of traumatic events during a long period.<sup>7</sup> Those with PTSD are likely to display poorer life satisfaction, and physical, psychological, behavioral, and

emotional problems.<sup>8</sup> In PTSD, an individual is exposed to an extreme traumatic event that may include “actual or threatened death or serious injury, or a threat to the physical integrity of self or others” and the individual’s response must involve “intense fear, helplessness, or horror” (Criterion A). Persistent re-experiencing of the traumatic event (Criterion B), persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (Criterion C), and persistent symptoms of increased arousal (Criterion D) are typical symptoms, among others, that stem from the exposure to the extreme trauma. In addition to these criteria, over a month-long period of full symptom situation (Criterion E), and clinically crucial distress or impairment, caused by the disturbance, in social, professional or other aspects of functioning (Criterion F) must be observed.<sup>9</sup>

Exposure to trauma does not necessarily lead to the development of psychopathology, and this mainly depends on individuals’ resilience skills and capacities to recover.<sup>10</sup> Resilience, which is generally considered as a personality trait, was described as the capability of the individual to effectively cope with possible adversities and negative changes.<sup>11</sup> Rutter defined resilience as “protective factors which modify, ameliorate or alter a person’s response to some environmental hazard that

predisposes to a maladaptive outcome.<sup>12</sup> It is argued that resilience concerns the extent to which an individual is stable and capable to recover from the negative effects of harmful conditions.<sup>13</sup> An ordinary course of development and adaptation along with well-thought-out policy and practice are required to enhance resilience in ways that can contribute to children's development if they experience psychosocial difficulties and related problems.<sup>14</sup>

There is direct and indirect exposure to violence among Palestinian children and adolescents, particularly those in Gaza and West Bank.<sup>15</sup> People living in the Gaza Strip have been pitifully affected by the military conflict over the last decades, principally after 2008. A growing number of studies have specifically focused on trauma effects, stemming from the protracted conflict, among people living there.<sup>16,17,18</sup> Results of these studies showed that individuals, particularly children and adolescents, who live in conflict settings experience numerous traumatic events, such as witnessing bombardment of buildings and the killing of people, watching mutilated bodies, etc. Results also highlighted a considerable development of mental health difficulty, specifically PTSD.

#### ***Wars on the Gaza Strip from 2008 to 2014***

At the end of December 2008, the Israeli army launched a military operation in the Gaza Strip, which lasted for 21 days. This operation resulted in the deaths of 1440 Palestinians from Gaza, including 431 children, and at least 14,000 houses were destroyed or partially damaged.<sup>19</sup> Another eight-day operation commenced in November 2012, in which 158 Palestinians were killed, 102 of whom were civilians, including 27 children.<sup>20</sup>

The longest and most dreadful military operation on the Gaza Strip started in August 2014 lasting for 52 days, which was more destructive than the wars in 2008 and 2012. It was also the first operation to cause destruction of large towers, and a few neighborhoods entirely. A report showed that 2,131 Palestinians were killed, 501 of whom were children and adolescents, and more than 11,000 were wounded.<sup>21</sup> In 2014, over 110,000 Palestinians were internally displaced in UNRWA shelters or with host families, and 108 individuals were homeless. Approximately 18,000 housing units were destroyed.

During the 2014 war, many families from the Al-Nasr area, having received warning calls from the Israeli army to evacuate their houses, managed to escape to the Al-Nasr Pediatric Hospital, where the principal researcher once worked. Even though the hospital was equipped only to deal with medical pathologies among children, a huge

number of wounded from different ages were brought to the hospital for surgical intervention. When we received those families and injured persons, and when providing them with necessary emergency services, we witnessed obvious symptoms of panic and fear, especially among children and adolescents who were fearfully holding their parents' hands. The authors acknowledge that it was of utmost importance to not only provide instant medical care, but also to carry out research into the impact of these traumas on the affected populations to eliminate detrimental consequences in the end. The significance of the current study lies in investigating the development of PTSD as a psychological disorder among Gazan adolescents, and how resilient they were after the 52-day war, as well as examining the relationship between frequent exposure to traumatic events, PTSD, and resilience.

## **Methodology**

### ***Participants***

Four hundred and eight Gazan adolescents (209 boys and 199 girls) were recruited with the help of 10 Community-Based Organizations (CBO) located in the five governorates of the Gaza Strip. The number of participants was 420 in the beginning, but 12 of them dropped out during the course of data collection. Participants' ages ranged from 13 to 18 years ( $M=15.49$ ,  $SD=1.71$ ).

Proportional convenience sampling was used. We prepared a list of active CBOs from all areas in the Gaza Strip and then we divided them into five categories according to the five governorates. Two CBOs were selected randomly from each governorate by using simple random sampling. Ten CBOs were contacted and informed about the purpose of the study; with their help, we accessed the target group of adolescents to participate in the current study. The number of participants required from each governorate was calculated according to the density of their respective population. Inclusion criteria were that participants had to be adolescents regardless of gender, living in the Gaza Strip, aged from 13-18 years, and to have lived through the 52-day war in 2014. We excluded all adolescents who were outside Gaza during the war, who had been diagnosed with mental disorder or psychological disturbance prior to the war.

## Instruments

### *Sociodemographic questionnaire*

Included in the questionnaire were age, gender, place and type of residence, number of siblings, parents' education and occupation, and family income.

### *Gaza Traumatic Events Checklist (GTEC)*<sup>22</sup>

The GTEC is 28-item self-report checklist comprised of three sections that characterize typical traumatic events that Palestinians in Gaza could have experienced during the 52-day war in 2014: (1) Witnessing acts of the violence (e.g., firing by tanks and heavy artillery, shooting and/or killing of a friend and/or relative, demolishing houses; (2) having experiences of loss, injury and destruction within the family and among other close persons; and, (3) being a victim of the violence (e.g., being beaten, shot, or injured). Participants indicated whether they had experienced these events by endorsing either (0) no or (1) yes. The GTEC had an internal consistency of  $\alpha=0.89$ .

### *Posttraumatic Stress Disorder Scale-DSM-IV (Arabic version)*

Items on the PTSD scale are related to DSM-IV criteria that help in providing initial PTSD diagnostic information since, at the material time, the DSM-V had not been published. The adolescent version of the PTSD scale, which is designed for adolescents aged 13 years and over, consists of 17 questions divided into three sections. It is suitable for administrating in classroom settings. The first section comprises re-experiencing symptoms (five items). The second section includes avoidance symptoms (seven items). The third section contains arousal symptoms (five items). A three-point scale was used for rating PTSD symptoms: 0=never/rarely, 1=sometimes, and 2=a lot/often. The Arabic version of the Posttraumatic Stress Disorder Scale<sup>6</sup> was used in the current study.

### *Child and Youth Resilience Measure (CYRM-28)*<sup>23</sup>

The CYRM-28 is a 28-item self-report measure, which was developed by using confirmatory factor analysis. It contains three subscales reflecting the main categories of resilience. The first subscale represents individual factors that are categorized as five items for personal skills, two items for peer support, and four items for social skills. The

second subscale concerns caregiving with two items related to physical caregiving and five items related to psychological caregiving. The third subscale consists of contextual components that promote a sense of belonging, namely three items related to spirituality, five items related to culture, and two items related to education. Items of CYRM-28 are rated on a three-point scale: 0=never/rarely, 1=sometimes, and 2=a lot/often. Higher scores indicate higher levels of resilience. The CYRM-28 has been utilized in numerous studies and demonstrated an adequate internal consistency with Cronbach's alpha of  $\alpha=0.94$ .

### *Procedure*

The current study was conducted six months after the 52-day war on Gaza in 2014. After we contacted CBOs and explained the aim and described the procedure of the study, with their help, we collected the desired sample of adolescents to implement the study. Prior to conducting the study, oral assent from adolescents and written consent from their parents was obtained. The researcher with the help of three trained field workers, on 10 separate days, visited the CBOs and collected data by interviewing participants and supporting them to complete the checklists. If participants were unclear about specific statements from the checklist and self-report questionnaires these were carefully clarified for them. It was taken into account that some participants might be retraumatized after being exposed to questions related to their traumatic experiences. After completing data collection, all participants were provided with individual psychological support, and those who showed severe traumatization symptoms received the appropriate psychological interventions.

## Results

### *Sociodemographic characteristic*

Table 1 shows the sociodemographic characteristics of the sample of 408 adolescents.

**Table 1.** Sociodemographic characteristics

Item	No	%
<b>Place of residence</b>		
North Gaza	72	17.6
Gaza	132	32.4
Middle area	60	14.7
Khan-Younis	96	23.5
Rafah	48	11.8
<b>Type of residence</b>		

Own	295	72.3
Rent	57	14
Camp	12	2.9
With family	44	10.8
<b>Number of siblings</b>		
4 and less	58	14.2
5-7 siblings	198	48.5
8 and more	152	37.3
<b>Family monthly income (New Israeli Shekel NIS)</b>		
Below 1200	301	73.8
1201-2000	49	12
2001-3000	34	8.3
More than 3000	24	5.9
<b>Paternal education</b>		
Not educated	12	2.9
Preparatory	32	7.8
Elementary	68	16.8
Secondary	158	38.7
Diploma	29	7.1
Undergraduate	97	23.8
Post-graduate	12	2.9
<b>Maternal education</b>		
Not educated	17	4.3
Preparatory	27	6.6
Elementary	71	17.4
Secondary	209	51.2
Diploma	27	6.6
Undergraduate	54	13.2
Post-graduate	3	0.7
<b>Paternal job</b>		
Unemployed	214	52.5
Skilled worker	53	13
Civil employee and working	83	20.3
Civil employee not at work and getting salary	38	9.3
Merchant	20	4.9
<b>Maternal job</b>		
House wife	373	91.4
skilled worker	9	2.2
Merchant	4	0.1
Civil employee and working	18	4.4
Civil employee not at work and getting salary	4	1.0

The most frequently reported traumatic experiences, from greatest to least, were watching mutilated bodies on TV; hearing shelling of the area by artillery; hearing the loud voice of drones; being forced to leave your home with family members due to shelling; and, inhalation of bad smells due to bombardment. Results showed that 10.6% of the participants had experienced five or less traumatic events; 40.9% had experienced six to 10 traumatic events; and, 48.5% had experienced more than 10 traumatic

events. The mean for number of traumatic experiences was  $M = 10.91$  ( $SD = 4.80$ ). Figure 1 illustrates the severity of traumatic events according to their number. Boys ( $M = 11.79$ ,  $SD = 4.83$ ) noted significantly greater numbers of traumatic experiences than girls  $M = 9.98$  ( $SD = 4.60$ ),  $t = 3.87$ ,  $p = 0.001$ .

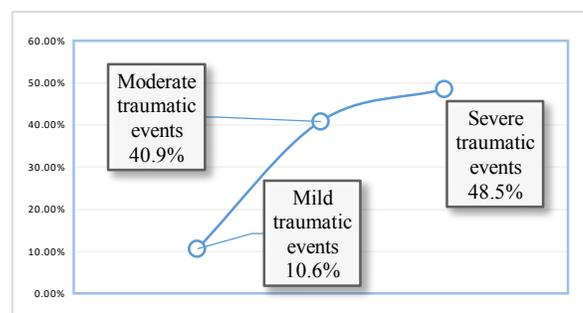


Figure 1. Severity of traumatic events

### Posttraumatic Stress Disorder

Results indicated that recurrent and intrusive distressing recollections of the event (including images, thoughts, or perceptions), exaggerated startle response, acting or feeling as if the traumatic event were recurring, efforts to avoid activities, places, or people that arouse recollections of the trauma, and efforts to avoid thoughts, feelings, or conversations associated with the trauma were the most frequently experienced posttraumatic reactions in on their respective order. The mean average for total scores in the PTSD scale was  $M = 29.53$  ( $SD = 12.96$ ); for re-experiencing symptoms  $M = 9.95$  ( $SD = 4.71$ ), for avoidance symptoms  $M = 10.37$  ( $SD = 5.48$ ), and for arousal symptoms  $M = 9.21$  ( $SD = 4.87$ ). Table 2 depicts the prevalence of PTSD symptoms based on DSM-IV criteria for PTSD. There was no statistically significant difference between boys and girls for total PTSD scores and subscales,  $t = 1.07$ ,  $p = 0.29$ .

Table 2. Prevalence of PTSD symptoms

PTSD diagnosis	No	%
No PTSD	82	20.1
One symptom (B or C or D)	127	31.1
Partial PTSD	121	29.7
Full PTSD	78	19.1

The results showed statistically significant differences in total PTSD symptoms,  $F(4, 403) = 3.850$ ,  $p = 0.004$ , avoidance symptoms,  $F(4, 403) = 3.497$ ,  $p = 0.008$  and arousal symptoms,  $F(4, 403) = 3.850$ ,  $p = 0.007$  according to place of residence. To find out the differences between groups, we ran an LSD post-hoc. The results showed that adolescents from the middle area of the Gaza Strip

reported the highest level for total PTSD symptoms ( $M = 33.43$ ,  $SD = 10.57$ ), avoidance symptoms ( $M = 11.68$ ,  $SD = 3.99$ ), and arousal symptoms ( $M = 10.46$ ,  $SD = 4.17$ ). Adolescents from North Gaza reported the lowest total PTSD symptoms ( $M = 25.88$ ,  $SD = 12.07$ ), avoidance symptoms ( $M = 9.07$ ,  $SD = 5.25$ ), and arousal symptoms ( $M = 7.61$ ,  $SD = 4.62$ ).

**Resilience skills**

Results demonstrated that the more frequently endorsed of the resilience statements, from most to least, were: “Getting an education is important to me”, “I am proud of my nationality”, “I feel safe when I am with my caregivers”, “Spiritual (religious) beliefs are a source of strength for me”, “I am proud of my family background”, and, “My caregivers stand by me during difficult times”. Table 3 shows the means and standard deviations of resilience factors/skills. There were statistically significant gender differences for social skills only. Boys ( $M = 11.21$ ,  $SD = 3.47$ ) reported higher social skills than girls ( $M = 10.28$ ,  $SD = 3.34$ ),  $t = 2.75$ ,  $p = 0.01$ .

Depending on place of residence, there were statistically significant differences in the scores for personal skills,  $F(4, 403) = 3.097$ ,  $p = 0.016$ , peer component,  $F(4, 403) = 3.359$ ,  $p = 0.010$ , and psychological relationship with caregiver,  $F(4, 403) = 2.614$ ,  $p = 0.035$ . To find out the differences between groups, we ran LSD post-hoc. Results showed that adolescents from North Gaza had the highest scores for personal skills ( $M = 14.75$ ,  $SD = 3.01$ ), peer relationships ( $M = 6.20$ ,  $SD = 1.57$ ), and psychological relationship with caregiver ( $M = 16.45$ ,  $SD = 3.52$ ). Whilst, the lowest scores for personal skills ( $M = 13.20$ ,  $SD = 3.62$ ), peer component ( $M = 5.31$ ,  $SD = 1.99$ ), and psychological relationship with caregiver ( $M = 14.99$ ,  $SD = 3.92$ ) were observed among adolescents from Gaza.

There were also statistically significant differences, regarding monthly income, personal skills,  $F(4, 403) = 3.736$ ,  $p = 0.011$ , and social skills,  $F(4, 403) = 2.839$ ,  $p = 0.038$ . LSD post hoc showed that adolescents from families with a monthly income between 2001 and 3000 NIS ( $M = 15.79$ ,  $SD = 2.67$ ) reported higher personal skills compared to other groups. Adolescents from families with an income of more than 3000 NIS ( $M = 12.54$ ,  $SD = 2.75$ ) endorsed more social skills than all other participants.

Results revealed statistically significant differences, regarding number of siblings, peer relationships,  $F(4, 403) = 3.093$ ,  $p = 0.046$ , social skills,  $F(4, 403) = 2.873$ ,  $p = 0.050$ , and psychological relationship with caregiver,  $F(4, 403) = 4.012$ ,  $p = 0.019$ . LSD post hoc results showed that

adolescents with four or fewer siblings reported higher scores for peer relationships ( $M = 6.26$ ,  $SD = 1.63$ ), and social skills ( $M = 11.72$ ,  $SD = 2.95$ ) than adolescents who with five to seven siblings or those with more than eight siblings. Adolescents with five to seven siblings were reported having better psychological relationships with their caregiver ( $M = 16.04$ ,  $SD = 3.44$ ) than participants in other categories.

**Table 3.** Means and SD of resilience factors/skills

Item	Mean	SD
<b>Total resilience</b>	82.15	15.31
<b>Personal skills</b>	14.01	3.40
<b>Peer relationships</b>	5.68	1.96
<b>Social skills</b>	10.75	3.43
<b>Physical relationship with caregiver</b>	5.19	2.22
<b>Psychological relationship with caregiver</b>	15.51	3.90
<b>Spiritual beliefs</b>	9.36	2.27
<b>Culture factors</b>	14.87	3.91
<b>Educational factors</b>	6.79	1.78

**Traumatic experiences, posttraumatic stress disorder, and resilience**

Pearson’s correlation coefficient showed a significant positive relationship between total number of traumatic events and total PTSD ( $r = 0.418$ ,  $p = 0.001$ ), re-experiencing symptoms ( $r = 0.399$ ,  $p = 0.001$ ), avoidance symptoms ( $r = 0.366$ ,  $p = 0.001$ ), and arousal symptoms ( $r = 0.315$ ,  $p = 0.001$ ). The total number of traumatic events negatively correlated with personal skills ( $r = -0.119$ ,  $p = 0.05$ ) and peer relationships ( $r = -0.099$ ,  $p = 0.05$ ). PTSD was negatively correlated with total resilience ( $r = -0.122$ ,  $p = 0.05$ ), personal skills ( $r = -0.136$ ,  $p = 0.01$ ), social skills ( $r = -0.125$ ,  $p = 0.05$ ), and psychological relationship with caregiver ( $r = -0.134$ ,  $p = 0.01$ ).

Simple linear regression analysis was used to test whether number of traumas predicted the development of PTSD. The overall model was significant,  $F(1,406) = 85.76$ ,  $p = .000$ ,  $R^2 = .17$ . Results showed a significant positive relationship between total number of traumas reported and PTSD,  $\beta = .418$ ,  $t = 9.26$ ,  $p = .000$ . Simple linear regression analysis was also conducted to test if total number of traumas reported and PTSD negatively or positively correlated with total resilience scores. Results showed that total number of traumas did not predict resilience,  $F(1,406) = 1.66$ ,  $p = .197$ , while total PTSD was a significant predictor for resilience,  $F(1,406) = 6.102$ ,  $p = .014$ ,  $R^2 = .015$ . A significant negative

relationship between total PTSD and resilience was found,  $\beta = -1.22$ ,  $t = -2.47$ ,  $p = .014$ .

## Discussion

The current study investigated PTSD and resilience among adolescents in the Gaza Strip after the 52-day war in 2014. Unsurprisingly, similar to the results of this study, the experience of watching mutilated bodies on TV was found to be the most commonly recorded traumatic event in studies.<sup>25,26</sup> This does not negate the diversity of traumatic events among Palestinians, especially Gazans, who have been suffering from armed conflict since 1948. We believe that each period has its own characteristics, which in turn reflect the type and severity of its traumatic events and the development of PTSD. The surrounding environmental characteristics as well as the nature of war seem to play a significant role in anticipating the nature and severity of traumatic events and the development of PTSD. Results from a study conducted before the Second Intifada in 2000 indicated that tear gas inhalation and witnessing day raids were reportedly the most prevalent traumatic events, and 72.8% of the participants showed mild PTSD reactions while the rest reported PTSD reactions ranging between moderate and severe.<sup>18</sup> Another study conducted in 2004, after the Second Intifada and before the withdrawal of the Israeli army from the Gaza Strip, found that witnessing funerals and inhalation of tear gas were the most commonly recorded traumatic events and moderate PTSD levels were reported.<sup>27</sup>

A noticeable change in the type and number of traumatic events was recorded particularly with the start of military operations against Gaza in 2008. For instance, a study in 2008 found that nearly half of the participants experienced at least 16 traumatic events. The experience of being humiliated (either themselves or a family member) was the most prevalent of the traumatic events reported in the 2008 war.<sup>28</sup> Unlike the 2008 and 2014 wars, the 2012 war was the shortest in Gaza's recent history. The Israeli army relied only on air-strikes without ground invasion at the time. Less severe traumas were reported compared to the results of the current study.<sup>29</sup> We attribute this, as we mentioned earlier, to the nature, duration, and severity of war.

From the results of research over many years, the gradual development of PTSD can be deduced, which undoubtedly increased most in the last war in 2014, especially among children and adolescents (e.g., 19.1% of adolescents in this study showed full PTSD). As discussed above, Gazans have been suffering from armed conflict,

remarkably intensifying after 2008, for a long time, and thus, it can be argued that the population have a cumulative experience of trauma, which in turn explains the most recorded PTSD reaction in the current study.

As the principal researcher lived through the previous wars on Gaza, he noticed that people from North Gaza were subject to recurrent violence, while those from the middle area faced the least impact compared to the other four governorates in the 2008 and 2012 wars. These observations are consistent with current results that indicate adolescents from the middle area, who experienced intense attacks for the first time in the 52-day war, had the highest total PTSD, avoidance, and arousal symptoms. While those from North Gaza, who are used to intense armed clashes, showed the highest scores for personal skills, peer relationship, and psychological relationship with caregiver and resilience skills. It is noteworthy that people living in North Gaza showed less resilience compared with those living in Gaza or Khan Younis after the 2012 war.<sup>30</sup>

The current results indicated that boys reported being less affected by traumatic events, less traumatized, and more resilient than girls. Consistently, it was found that boys were more resilient, felt more capable of controlling their emotions, and challenging others than girls.<sup>17, 30</sup> Studies on PTSD found contradictory results in terms of gender differences. While a study revealed higher rates of PTSD among women when compared with men,<sup>31</sup> another study demonstrated the reverse.<sup>32</sup> Notwithstanding, exceptions, due to factors related to the environment and the time period, can be found. For instance, it was suggested that there is no significant difference between men and women in terms of rates of exposure to traumatic events.<sup>33, 34</sup>

Pursing an education was the highest resilience factor that adolescents reported. The adolescents we studied acknowledged having an education as an important factor by which they could overcome trauma. It is important to note that literacy rates in the Gaza Strip are among the highest in the world at 96.8%.<sup>35</sup> It is likely that adolescents living in communities with educated adults are better able to look to them as role models when developing their own ambitions.

Even though we anticipated a strong relationship between trauma and PTSD, as many studies<sup>36, 37, 38, 39, 40, 41</sup> have reported over the years, the current results showed significant but weak-moderate relationship. Significant albeit weak relationships were also reported between resilience and trauma, and PTSD. These weak-moderately significant relationships could be unique to the sample population.

The results of regression analysis revealed that trauma, constituting 17%, was a significant predictor of PTSD, which was a significant predictor for resilience with  $R^2 = .015$ . Congruent with our findings, exposure to trauma has been found in other studies to be positively correlated with PTSD and negatively correlated with resilience, as well as PTSD was negatively correlated with resilience.<sup>42, 43, 44</sup> In other words, exposure to trauma increases the likelihood of developing PTSD, which in turn risks having an adverse impact on resilience levels.

## Recommendations

To reduce current levels of PTSD and to prevent occurrence of traumatic experiences, the researcher recommends: 1) restriction by parents and caregivers of those TV programs that display violence and war reports, which necessarily requires the cooperation of local governmental bodies; 2) conscious selection by parents and caregivers of TV programs to ensure their suitability for children and adolescents; 3) establishing supportive and therapeutic programs that encourage affected adolescents to express their feelings and emotions, and providing appropriate counselling sessions for them; 4) training of mental health workers by the Ministry of Health to enhance the quality of mental health services; 5) establishing and following an effective plan of therapeutic interventions especially for those with severe PTSD symptoms; 6) directing the attention of parents and caretakers to the importance of education among adolescents (as a resilience factor); 7) building skills among the population in Gaza concerning coping mechanisms, especially for children and adolescents exposed to conflicts and wars; 8) raising awareness among teachers, parents and caregivers about ways to foster resilience among students; and, 9) conducting more studies concerned with the resilience factors and ways to increase resilience among people living in Gaza. Particularly, the findings of this study related to the significant relationships between resilience and sociodemographic factors, such as family income and the number of siblings require further research.

## Limitations

Despite the contribution the current study has made, there are certain limitations. First, we acknowledge there may have been participants with mental health difficulties, especially PTSD, which had not been diagnosed previously. Their inclusion will not have been intended. Another possible limitation was that many participants were retraumatized and some showed symptoms associated with panic disorder, which prompted us to

provide psychological support for a substantive period after the study.

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violence in a Palestinian in community sample. J Psychiatry. 2015;18(3): 1-9.

### ملخص

**الهدف:** هدفت هذه الدراسة من معرفة نسبة انتشار كرب مل بعد للرضح والصمود للفرد الذي لا مره تفيد في ظل فلسطيني في قطاع غزة بعد حرب 4104 والتي لنتي لنت مرت لمدة 24 يوماً. **المنهجية:** يتم اختيار عينة مكونة من 414 مره قتلواحت أعمارهم بين 01-04 عام من المخلطات لخدم في قطاع غزة وهي عدة من لا يجيد من لا مؤسرات لا مدمجة بتمت ع لية ج مع للين المتبلتخدام أبعه للتيارات (قياس لخصائص التي موعولية والاضحاج، للتي ان الأحداث الصادم في غزة، مقياس كرب مل بعد للرضح، ولتي ان الصاب للطفال والهل عن). **النتائج:** بينت النتائج أن حدث للصادم الذي س ج لفي لا مربة الألي يبين لا مره تين كان ش ادة لا بحث لا مشوه في للفلسطينيون. أظهرت النتائج أيضا أن جلي قرب من نصف الاشرا لتي نقت عرض والما لي قول عن 01 أحداث صدمة ونسبة 0.0% في م أظهروا لا م ع لير للكاله لتي كرب مل بعد للرضح (أي قت مشش خصص مع الاضطراب بسبب كالمية). لا حصول في التغير كان اللند الاكثر اضحار لتي لا مره تين كع امل صاب لفسرية. ابتطال عدد الاجل لتي الأحداث الصادمه لتي يت عرض لا مره قون لا فيني عيش ورفي في اطق اللزاع لا مره حل خطر الصدم ات ولفسرية لتي من لا م ص مل أنتو دي الى ضطراب مل بعد الصدمه كم وثل ع الصاب دوراً م هم في قول لتغير اللهي للصدمات وضطرابات مل بعد الصدمه ونصيب لا م فود من الأبحاث حول عوامل الصاب لفسرية خص بعب الإطلاع في النتائج للتحقق بالصاب في هذه الدراسة.

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## Cognitive Dysfunction in a Sample of People with Bipolar Affective Disorder

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تدور لوظائف لمعوفي قسي عينة من مرضى الاضطراب لوجدن وثقائى لقطب

تغريد محمد القفلحى، رانيا حنين محمد، رانيا أحمد حامد، طيدى محمد الام لالوين نجيم

### Abstract

**O**bjective: The neurocognitive function of people diagnosed with bipolar affective disorder has been the focus of debate for decades. **Method:** A random sample of 40 euthymic patients with a diagnosis of bipolar disorder were recruited from Helwan Mental Hospital and a cross matched control group was selected. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Young Mania Rating Scale (YMRS), Wechsler Adult Intelligence Scale III (WAIS-III) Wechsler Memory Scale-Revised (WMS-R), and Hamilton Depression Rating Scale (HAM-D) were administered to both groups. **Results:** There was a significant statistical difference in all WAIS subtests except Vocabulary and in the following WMS-R subtests: Current Information, Mental Control, Logical Memory, Visual Reproduction, Full Memory Scale. Whereas, differences in the Orientation and Memory Span for Digits subtests were significant. Positive family history significantly influenced performance on the WAIS-III for Digit Span, Object Assembly, Deterioration Index subtests. Duration of illness affected performance significantly on the WAIS-III Digit Coding subtest and the Current Information and Orientation subsets of WMS-R. Onset at an early age was positively correlated with Vocabulary, Object Assembly, and Performance IQ of the WAIS-III subtests. An increased number of episodes was significantly correlated with deterioration in performance on the WMS-R IQ Test and Current Information subtests. **Conclusion:** Cognitive impairment is a feature of bipolar disorder across all its stages and all future modalities of treatment should consider it.

**Key words:** Bipolar disorder, Euthymic, Cognitive impairment.

**Declaration of interest:** None.

### Introduction

Bipolar disorder (BD) is a serious mental health condition characterized by mood fluctuations, brain abnormalities, poor emotional regulation and affective processing, and cognitive deficits that, in most cases, persist across mood phases.<sup>1</sup>

Cognitive functions are mental processes that lead to the acquisition of knowledge and allow us to carry out our daily tasks. The Diagnostic Statistical Manual Fifth Edition (DSM-5) defined six domains of cognitive functioning: complex attention, executive functions, learning and memory, language, perceptual-motor, and social cognition.

The neurocognitive function of people with BD has been the focus of debate for decades. Traditionally, many people with the condition were considered to have higher IQ in comparison to the general population and to be more creative (e.g. artists, scientists, writers).<sup>2</sup>

Recent research has identified the presence of a broad and significant neurocognitive impairment even before the presence of mood symptoms.<sup>3</sup> It persists across the

different phases and can worsen during the course of the illness.

Cognitive deficits are present in bipolar disorder during both euthymic and remitted states.<sup>4,5</sup> They include impairment of working memory, sustained attention focusing-execution, abstract reasoning, visuomotor skills, verbal memory, verbal fluency and visuospatial ability.<sup>6</sup>

These deficits have been correlated with both the number of episodes and the whole duration of illness. Tests of memory and executive tasks were the most likely correlated episodes related to the condition.<sup>7</sup>

### Method

Participants were selected from the outpatient clinic of the Helwan Mental Hospital. A random sample of people diagnosed with bipolar affective disorder was selected. The sample comprised 40 patients in euthymic state ranging in ages from 20-50 years. They were assessed via the Hamilton Depression Rating Scale (HAM-D) and Young Mania Rating Scale (YMRS) with cutoff points being < 8 and < 6, respectively. They were cross matched with a control group of 40 people who had no apparent

physical or neuropsychiatric morbidity. Both groups were matched for age, gender, and other demographic variables. The control group was selected randomly from relatives of other patients in the Helwan Mental Hospital.

The experimental group were selected using a simple random sample method. Participants were assigned a unique number and a table of random numbers was used to selected until the desired sample size was reached.

**Measures**

*Structured Clinical Interview for DSM IV-TR Axis I Disorders (SCID I)<sup>8</sup> - Arabic version<sup>9</sup>*

SCID-I is a diagnostic interview designed for use by mental health professionals. It assesses 33 of the more commonly occurring psychiatric disorders described in the DSM-IV.

*Young Mania Rating Scale (YMRS)<sup>10</sup> - Arabic version<sup>11</sup>*

The Young Mania Rating Scale (YMRS) is one of the most frequently utilized rating scales to assess manic symptoms. The scale has 11 items and is based on the respondent’s subjective report of his or her clinical condition over the previous 48 hours. A score of ≤12 indicates remission of symptoms.

*The Hamilton Depression Rating Scale (HAM-D)<sup>12</sup> - Arabic version<sup>13</sup>*

The HAM-D has proven useful for many years as a way of determining a patient’s level of depression.

*Wechsler Adult Intelligence Scale III (WAIS-III)<sup>14</sup> - Arabic version<sup>15</sup>*

The WAIS-III comprises 11 subtests from which a person’s intelligence quotient (IQ) can be determined. In addition to an overall IQ, separate Verbal and Performance IQs can be derived from those subtests respectively assessing verbal reasoning abilities/knowledge and visuospatial problem-solving.

*Wechsler Memory Scale-Revised (WMS-R)<sup>16</sup> - Arabic version<sup>17</sup>*

The WMS-R is composed of subtests measuring free recall or recognition of verbal and visuospatial material. Subtests of the WMRS that present good assessment of memory were used in the present study. There comprised seven subtests: Spatial Addition, Symbol Span, Design Memory, General Cognitive Screener, Logical Memory, Verbal Paired Associates and Visual Reproduction. A person’s performance is reported as five Index Scores: Auditory Memory, Visual Memory, Visual Working Memory, Immediate Memory and Delayed Memory.

**Participant consent**

Written informed consent was obtained from all participants to indicate that they understood the nature and the aim of the present study.

**Results**

Sociodemographic data for all participants demonstrated homogeneity of age for the controls, and their age ranged from 20 to 50 years (M=32.81; SD ± 9.2). There were more men (35%) than women in the study. Six participants (15%) were divorced. Some participants reported having relatively low levels of education; 22 (55%) had not completed secondary school; four (10%) reported studying beyond secondary school. There was statistical significance regarding occupation (Table 1).

**Table 1.** Sociodemographic data

		Group		Chi-Square test	
		Controls	Cases	p-value	Sig.
		Mean ± SD N (%)	Mean ± SD N (%)		
Age		32.64 ± 9.18	32.81 ± 9.2	0.935	NS
Gender	Male	14 (35%)	14 (35%)	1.00	NS
	Female	26 (65%)	26 (65%)		
Marital status	Married	24 (60%)	15 (37.5%)	0.116	NS
	Single	11 (27.5%)	19 (47.5%)		
	Divorced	5 (12.5%)	6 (15%)		
Education	Less than six years	20 (50%)	22 (55%)	0.534	NS
	Six to 11 years	12 (30%)	14 (35%)		
	More than 11 years	8 (20%)	4 (10%)		

Occupation	Not working	8 (20%)	18 (45%)	0.005	S
	Student	4 (10%)	7 (17.5%)		
	Semi-Skilled	28 (70%)	13 (32.5%)		
	Skilled	0 (0%)	2 (5%)		
Residency	Rural	13 (32.5%)	19 (47.5%)	0.171	NS
	Urban	27 (67.5%)	21 (52.5%)		

\* Significant < 0.05

As shown in Table 2, earlier age of onset (18.91 +/- 2.48 years) and chronicity of bipolar disorder (13.71 +/- 8.51

years) were found. Positive family history of psychiatric illness was reported by 22 (55%) participants. Psychotic features were found in 27.5%, aggression and excitement in 35%.

**Table 2.** Clinical data for cases group

		Mean / N	SD / %	Median (IQR)
Age of onset		18.91	2.48	18.5 (17 - 21)
Duration of illness		13.71	8.51	11.5 (7.25 - 16)
Type of first episode	Depressive	17	42.5%	
	Manic	16	40.0%	
	Mixed	3	7.5%	
	Unknown	4	10.0%	
Number of episodes	1 or 2	8	20.0%	
	3 or 4	20	50.0%	
	>4	12	30.0%	
Frequency of episodes	< year	7	17.5%	
	Annual	4	10.0%	
	> year	29	72.5%	
Symptoms during last episode	Psychotic	11	27.5%	
	Aggression and excitement	14	35.0%	
	Both psychotic and aggression	7	17.5%	
	Suicide attempts	4	10.0%	
	None of the above	4	10.0%	
Type of last episode	Depression	12	30.0%	
	Mania	24	60.0%	
	Mixed	4	10.0%	
History of ECT	Never received	17	42.5%	
	Received but not in last episode	15	37.5%	
	Received during last episode	8	20.0%	
Family history of psychiatric illness	No history	18	45.0%	
	History of mood disorder	10	25.0%	
	History of schizophrenia or schizoaffective disorder	6	15.0%	
	History of unspecified mental disorder	6	15.0%	
Number of hospital admissions		2.05	1.84	2 (1 - 3.5)
Duration of current remission by month		13.83	7.40	11.5 (7.5 - 20)

Table 3 shows that the differences for the following WAIS-III subtests were statistically highly significant

( $p < 0.001$ ): Information, Digit Span, Arithmetic, Picture Arrangement, Picture Completion, Block Design, Object

Assembly, Digit Coding, Verbal IQ, Performance IQ and Full Scale IQ.

**Table 3.** Results of WAIS-III subtests for participants in both groups

WAIS-III Subtests	Group				Student <i>t</i> -test of sig.	
	Controls		Cases		<i>p</i> value	Sig.
	Mean ± SD Median (IQR)					
Information	10.08 ± 1.02		8.08 ± 1.85		<0.001**	HS
Comprehension	12.43 ± 1.55		10.6 ± 2.98		0.001*	S
Arithmetic	8.28 ± 2.32		5.68 ± 2.86		<0.001**	HS
Digit Span	8.43 ± 2.34		6.9 ± 2.84		0.011*	S
Similarities	11.6 ± 2.04		8.9 ± 2.12		<0.001**	S
Vocabulary	9.6 ± 1.41		8.65 ± 1.99		0.059	NS
Picture Arrangement	9.63 ± 3.08		7.15 ± 2.71		<0.001**	HS
Picture Completion	10.88 ± 2.38		8.03 ± 1.93		<0.001**	HS
Block Design	9.78 ± 1.87		7.28 ± 2.03		<0.001**	HS
Object Assembly	12.13 ± 1.86		9.23 ± 2.62		<0.001**	HS
Digit Coding	14.23 ± 3.43		8.4 ± 2.57		<0.001**	HS
Verbal IQ	105.03 ± 6.58		91.1 ± 13.3		<0.001**	HS
Performance IQ	112.5 (106.5 - 121)		92 (78 - 101)		<0.001**	HS
Full Scale IQ	108.25 ± 7.49		90.33 ± 12.89		<0.001**	HS
Deterioration Index by %	9.7 (3.15 - 13.2)		16 (6.5 - 25)		0.003*	S

\*Significant < 0.05 \*\* Highly Significant < 0.001 IQ= Intelligence Quotient DI= Deterioration Index

The differences were statistically significant ( $p < 0.05$ ) for the Comprehension, Digit Span, Similarities, Digit Symbol and Deterioration Index subtests. The only subtest with no statistically significant difference was Vocabulary ( $p = 0.059$ ).

Table 4 shows statistically highly significant differences for five WMS-R subtests ( $p < 0.001$ ): Current Information, Mental Control, Logical Memory, Visual Reproduction, Full Memory Scale.

**Table 4.** WMS-R subtests by subjects of both groups

WMS-R Subtests	Group				Student <i>t</i> -test of sig.	
	Controls		Cases		<i>p</i> value	Sig.
	Mean ± SD Median (IQR)					
Current Information	5.28	0.68	4.38	1.35	<0.001* *	HS
Orientation	5	5	4.65	0.74	0.005	S
Mental Control	6.75	1.84	4.53	1.68	<0.001* *	HS
Logical Memory	3	(2.5 - 4.5)	1.5	(0.5 - 2.75)	<0.001**	HS
Memory Span for Digits	9.38	2.27	7.7	2.48	0.002	S
Visual Reproduction	7.5	(6 - 8)	3	(2 - 6)	<0.001**	HS
Paired Associated Learning	5	0.78	4.43 ±	1.66	0.053	NS
Full Memory Scale	72.58	4.38	64.48 ±	13.76	0.001	HS

\*Significant < 0.05 \*\* Highly Significant < 0.001

There were statistically significant differences for two subtests: Orientation and Memory Span for Digits. The

only subtest that was non-significant ( $p > 0.5$ ) was that of Paired Association Learning.

Table 5 shows statistically significant differences ( $p < 0.05$ ) for four WMRS subtests: Current Information, Orientation, Memory Span for Digits, and Full Memory Scale.

**Table 5.** Results of the WMS-R subtests for both groups of participants based on gender

	Gender		Student <i>t</i> -test	
	Male	Female	<i>p</i> value	Sig.
	Mean ± SD Median (IQR)	Mean ± SD Median (IQR)		
Current Information	5.14 ± 0.66	3.96 ± 1.46	0.007	S
Orientation	5 ± 0	4.46 ± 0.86	0.004	S
Mental Control	4.93 ± 1.73	4.31 ± 1.64	0.270	NS
Logical Memory	2.5 (1 - 5)	1.5 (0.5 - 2)	0.13 <sup>(M)</sup>	NS
Memory Span for Digits	9.21 ± 1.67	6.88 ± 2.49	0.003	S
Visual Reproduction	4.5 (2 - 7)	3 (2 - 6)	0.244 <sup>(M)</sup>	NS
Paired Associated Learning	4.64 ± 1.69	4.31 ± 1.67	0.550	NS
Full Memory Scale	72.14 ± 18.04	60.35 ± 8.69	0.034	S

\*Significant < 0.05

Table 6 shows that patients with positive family history have significant difference in Digit Span WAIS, Object Assembly, and Deterioration Index performance.

**Table 6.** Results of WAIS-III subtests for bipolar patients with positive and negative family history of psychiatric disorders

WAIS-III Subtests	Family history of psychiatric illness				One-way ANOVA	
	No history	History of mood disorder	History of schizophrenia or schizoaffective disorder	History of unspecified mental disorder	P-Value	Sig.
	Mean ± SD Median (IQR)	Mean ± SD Median (IQR)	Mean ± SD Median (IQR)	Mean ± SD Median (IQR)		
Information	8 ± 1.94	8.4 ± 2.27	8.5 ± 0.84	7.33 ± 1.63	0.669	NS
Comprehension	10.78 ± 3.54	10.5 ± 3.1	10.5 ± 0.84	10.33 ± 2.88	0.989	NS
Arithmetic	4 (3 - 7)	5 (5 - 10)	7 (7 - 7)	4 (3 - 7)	0.340 <sup>(K)</sup>	NS
Digit Span	5 (4 - 8)	8 (7 - 11)	8 (8 - 8)	6 (2 - 8)	0.040 <sup>(K1)</sup>	S
Similarities	9.06 ± 1.95	8 ± 2.4	9.17 ± 1.47	9.67 ± 2.66	0.442	NS
Vocabulary	8.44 ± 2.38	9.2 ± 1.93	8.17 ± 0.41	8.83 ± 1.94	0.731	NS
Picture Arrangement	9 (8 - 10)	4 (3 - 10)	5 (3 - 8)	8 (7 - 8)	0.054 <sup>(K)</sup>	NS

*Cognitive Dysfunction in People with Bipolar Affective Disorder*

Picture Completion	7.44 ± 1.04	8.4 ± 2.12	7.67 ± 0.82	9.5 ± 3.51	0.12 2	NS
Block Design	7.33 ± 2.11	6.7 ± 2.36	7.33 ± 1.37	8 ± 1.9	0.67 7	NS
Object Assembly	10.06 ± 2.24	7.1 ± 2.6	8.67 ± 2.25	10.83 ± 2.04	0.00 7 <sup>(A1)</sup>	S
Digit Coding	8.78 ± 2.29	8.2 ± 2.53	6.5 ± 1.76	9.5 ± 3.56	0.18 5	NS
Verbal IQ	89.39 ± 15.36	94.4 ± 12.71	92.67 ± 6.19	89.17 ± 14.5	0.78 5	NS
Performance IQ	92.61 ± 12.22	86.9 ± 8.74	84.83 ± 14.3	99.67 ± 19	0.17 0	NS
Full Scale IQ	90.56 ± 14.31	88.9 ± 11.72	89.83 ± 9.68	92.5 ± 15.77	0.96 2	NS
Deterioration Index by %	19 (12 - 31)	5.75 (4 - 15)	15 (8 - 17)	22 (19 - 31)	0.00 5 <sup>(K1)</sup>	S

\*Significant < 0.05

Table 7 shows a positive correlation between all WAIS-III subtests and years of education that reach a significant level in all the subtests except for Comprehension, which

is non-significant. Conversely, the Deterioration Index subtest showed statistically significant negative correlation with years of education.

**Table 7.** Association between WAIS-III subtests for participants and years of education

Education	Spearman's rho	p value	Sig.
Information	0.498	<0.001	HS
Comprehension	0.207	0.065	NS
Arithmetic	0.488	<0.001	HS
Digit Span	0.391	<0.001	HS
Similarities	0.41	<0.001	HS
Vocabulary	0.53	<0.001	HS
Picture Arrangement	0.319	0.004	S
Picture Completion	0.362	0.001	S
Block Design	0.317	0.004	S
Object Assembly	0.387	<0.001	HS
Digit Coding	0.441	<0.001	HS
Verbal IQ	0.526	<0.001	HS
Performance IQ	0.443	<0.001	HS
Full Scale IQ	0.552	<0.001	HS
Deterioration Index by %	-0.277	0.013	S

S=Significant (< 0.05) HS=Highly Significant (<0.001) IQ = Intelligence Quotient

Table 8 shows a positive correlation between all WMS-R subtests and years of education that reach a significant

level in all the subtests except the Paired Associated Learning subtest, which was non-significant.

**Table 8.** Association between subtests of WMS-R by the subjects with years of education

Education	Spearman's rho	p value	Sig.
Current Information	0.321	0.004	S
Orientation	0.347	0.002	S
Mental Control	0.268	0.016	S
Logical Memory	0.266	0.017	S

Memory Span for Digits	0.228	0.042	S
Visual Reproduction	0.503	<0.001	HS
Paired Associated Learning	0.095	0.401	NS
Full Memory Scale	0.399	<0.001	HS

S = Significant (< 0.05) HS = Highly Significant (<0.001)

Table 9 shows a statistically significant positive correlation between the age of onset and the Vocabulary and Object Assembly subtests. Performance IQ and Full

Memory Scale show a statistically significant positive correlation with age of onset.

**Table 9.** Association between WAIS-III subtests for bipolar patients and age of onset

Age of onset	Pearson Correlation	p value	Sig.
Information	0.122	0.454	NS
Comprehension	-0.166	0.305	NS
Arithmetic	0.200	0.216	NS
Digit Span	-0.029	0.861	NS
Similarities	0.032	0.843	NS
Vocabulary	0.318	0.046	S
Picture Arrangement	0.065	0.691	NS
Picture Completion	-0.024	0.885	NS
Block Design	0.638	<0.001	HS
Object Assembly	0.357	0.024	S
Digit Coding	-0.057	0.728	NS
Verbal IQ	0.177	0.274	NS
Performance IQ	0.462	0.003	S
Full Scale IQ	0.270	0.093	NS
Deterioration Index by %	-0.103	0.526	NS
Full Memory Scale	0.404	0.010	S

S= Significant (< 0.05) HS= Highly Significant (<0.001) IQ= Intelligence Quotient

Table 10 shows a statistically significant positive correlation between age of onset and the Full Memory

Scale subtest.

**Table 10.** Association between results of the WMS-R subtests by bipolar patients and age of onset of illness

Age of onset	Pearson Correlation	p-Value	Sig.
Current Information	0.151	0.351	NS
Orientation	0.053	0.745	NS
Mental Control	0.017	0.915	NS
Logical Memory	0.087	0.593	NS
Memory Span for Digits	0.195	0.227	NS
Visual Reproduction	0.132	0.417	NS
Paired Associated Learning	0.065	0.689	NS
Full Memory Scale	0.404	0.010	S

\*Significant < 0.05

Table 11 shows that there is a statistically significant negative correlation between duration of illness and the Digit Coding subtest.

**Table 11.** Results of the WAIS-III subtests by bipolar patients with increasing duration of illness

Duration of illness	Pearson Correlation	p value	Sig.
Information	-0.114	0.485	NS
Comprehension	0.041	0.800	NS
Arithmetic	0.066	0.685	NS
Digit Span	-0.176	0.278	NS
Similarities	-0.007	0.968	NS
Vocabulary	-0.097	0.550	NS
Picture Arrangement	-0.054	0.743	NS
Picture Completion	-0.280	0.080	NS
Block Design	-0.227	0.160	NS
Object Assembly	0.000	0.998	NS
Digit Coding	-0.329	0.038	S
Verbal IQ	0.228	0.158	NS
Performance IQ	0.243	0.131	NS
Full Scale IQ	0.161	0.320	NS
Deterioration Index by %	-0.061	0.708	NS

\* Significant < 0.05

Table 12 shows a statistically significant correlation between duration of illness and the Current Information and Orientation subtests.

**Table 12.** Results of the WMRS subtest by bipolar patients with increasing duration of illness

Duration of illness	Pearson Correlation	p value	sign
Current Information	0.349	0.027	S
Orientation	0.35	0.027	S
Mental Control	-0.015	0.926	NS
Logical Memory	-0.091	0.575	NS
Memory Span for Digits	-0.095	0.559	NS
Visual Reproduction	-0.248	0.123	NS
Paired Associated Learning	-0.200	0.215	NS
Full Memory Scale	0.186	0.250	NS

\*Significant < 0.05

Table 13 shows a statistically significant correlation between number of episodes and performance.

**Table 13.** Association of the WAIS-III subtests for bipolar patients with number of episodes

Number of episodes	Spearman's rho	p value	Sig.
Information	-0.025	0.879	NS
Comprehension	0.114	0.482	NS
Arithmetic	-0.074	0.650	NS
Digit Span	-0.051	0.756	NS
Similarities	0.172	0.288	NS
Vocabulary	-0.095	0.559	NS
Picture Arrangement	-0.100	0.540	NS
Picture Completion	-0.196	0.225	NS

Block Design	0.130	0.423	NS
Object Assembly	0.228	0.158	NS
Digit Coding	-0.266	0.097	NS
Verbal IQ	0.311	0.051	NS
Performance IQ	0.398	0.011	S
Full Scale IQ	0.265	0.099	NS
Deterioration Index by %	-0.127	0.434	NS

\*Significant < 0.05

Table 14 shows a statistically significant correlation between number of episodes and the Current Information subtest.

**Table 14.** Association of the WMS-R subtests by the bipolar patients with number of episodes

Number of episodes	Spearman's rho	p value	Sig.
Current Information	0.383	0.015	S
Orientation	0.290	0.069	NS
Mental Control	-0.102	0.533	NS
Logical Memory	0.054	0.738	NS
Memory Span for Digits	0.068	0.675	NS
Visual Reproduction	-0.201	0.213	NS
Paired Associated Learning	-0.134	0.410	NS
Full Memory Scale	0.189	0.242	NS

\*Significant < 0.05

Table 15 shows no statistically significant correlation between number of hospital admission and all subtests that comprise the WAIS-III.

**Table 15.** Association between WAIS-III subtests for bipolar patients and number of hospital admissions

Number of hospital admissions	Pearson Correlation	p value	Sig
Information	-0.235	0.144	NS
Comprehension	-0.052	0.748	NS
Arithmetic	-0.187	0.248	NS
Digit Span	-0.185	0.252	NS
Similarities	-0.071	0.663	NS
Vocabulary	-0.205	0.205	NS
Picture Arrangement	-0.094	0.564	NS
Picture Completion	-0.116	0.476	NS
Block Design	-0.155	0.339	NS
Object Assembly	0.008	0.960	NS
Digit Coding	-0.265	0.099	NS
Verbal IQ	0.090	0.581	NS
Performance IQ	0.285	0.075	NS
Full Scale IQ	0.081	0.617	NS
Deterioration Index by %	-0.033	0.841	NS

Table 16 shows a statistically significant correlation between number of hospital admissions and the Orientation, Visual Reproduction, and Paired Associated Learning subtests.

**Table 16.** Association between WMS-R subtests for bipolar patients and number of hospital admissions

Number of hospital admissions	Pearson Correlation	<i>p</i> value	Sig.
Current Information	0.281	0.079	NS
Orientation	0.317	0.047	S
Mental Control	-0.200	0.217	NS
Logical Memory	-0.164	0.312	NS
Memory Span for Digits	-0.171	0.292	NS
Visual Reproduction	-0.324	0.041	S
Paired Associated Learning	-0.343	0.030	S
Full Memory Scale	-0.001	0.995	NS

\*Significant < 0.05

## Discussion

Bipolar Disorder (BD) is not only a cycling, but also a chronic mental health condition frequently associated with adverse cognitive performance in the area of social functioning. People with BD in remission may face multiple disadvantages in daily living due to these neurocognitive deficits.<sup>18</sup> It has been suggested that euthymic BD individuals would have poor cognitive functioning. The current study aimed to verify that hypothesis.

At the point of assessment, 62.5% of those in the group diagnosed with BD reported having no income, financial resources nor social support; 45% were working. The remaining 17.5 % were either still studying or repeating the same year of education and were dependent on their families. These data reflect the burden experienced by people with BD and their caregivers as well as the health care systems (e.g. re-hospitalization).<sup>19</sup> The ability to regain premorbid levels of social and vocational functioning in the community was found in 45% of patients with BD in the 1970s, and surprisingly in only 24-36% in recent studies.

Earlier age of onset and chronicity of the BD condition were found among the cases group. It is notable that lower cognitive functioning appears to follow a steeper decline in BD course, i.e., the longer the duration of the condition, the more dysfunctions observed. In our study, duration appeared to affect cognitive processing speed.

The clinical variables of the cases group showed that 42.5% described BD as having started as depressive mood episode; in 30% depression was the last mood episode compared to manic episodes as a first episode in 40% of cases and in 60% as a last episode. Functional status was far more impaired in patients with BD than previously believed, even for those in euthymic phase.

Psychotic features reported in 27.5% were correlated with poor cognitive functioning. The finding supported other studies.<sup>20,21</sup>

Positive family history of major mental difficulties was reported by 22 (55%) of the current study sample, which supported studies that suggest BD is inheritable with heritability reaching as high as 90%.<sup>22</sup> However, in our study the findings did not correlate with poor cognitive functioning.

Psychopharmacological treatments were shared by 95% of participants with euthymic symptoms. Treatment was mostly via mood stabilizers, second-generation antipsychotics and ECTs for 57.5%. Some studies suggest that both mood stabilizers and atypical antipsychotics neither improve nor worsen cognitive functioning.<sup>23</sup> Others suggest that mood stabilizers, especially lithium, may negatively affect cognitive functions such as psychomotor speed and verbal memory.<sup>2</sup>

In the current study, the WAIS-III indicated an overall cognitive impairment in cases compared to controls, which likely highlights a trait of social maladaptation and social dysfunctions that may manifest at the early beginning of the illness in a group of patients.<sup>25,26</sup> Dysfunction should target differential effects on various aspects of the outcome, such as social and occupational adjustments, and strongly encourages efforts to develop more specific treatments where possible.

The use of the WMS-R highlighted poor performance for participants in all seven subtests. One study with similar results compared 50 healthy controls and 100 patients who were euthymic and had BD and found patients to have impairment in the subtests for Verbal Span, Visual Span, List Recall, Visual Reproduction, Visual Recognition, Short-Term Memory, Verbal Memory, Visual Memory, and Total Memory score.<sup>26</sup> Similarly, a study in Spain analyzed cognitive variability in a sample of patients with

Bipolar II disorder, and found that approximately half of the patients were cognitively impaired with 12% being severely and globally impaired.<sup>27</sup>

Regarding gender differences, men performed significantly better in the Current Information, Orientation, Memory Span for Digits, and Full Memory Scale subtests. This was consistent with a study that found men performed better on visuospatial tasks.<sup>28</sup> Men were also better on all WMS-R, but the difference was more significant in the Orientation, Memory Span for Digits, and Memory Scale subtests. Our findings were consistent with a study that found women performed worse than men on language, executive function, learning and memory, and visual/spatial domains.<sup>29</sup> Findings were also consistent with an Egyptian study with patients attending El Mamoura Mental Hospital, which found a statistically significant gender-related difference in terms of short-term memory, attention, and working memory, with women being worse than men.<sup>30</sup>

As for positive family history of BD, findings from the current study were inconsistent with research suggesting family history of affective disorders was predictive of higher current IQ although no significant association with general or working memory function was found.<sup>31</sup> In our study, we found that cases with family history demonstrated significant difference when performing tasks from the Object Assembly, Digit Span, and Deterioration Index subtests.

Further, we found a significant association between years of education and cognitive impairment, which was consistent with a study that found bipolar patients to have associated learning disabilities and executive function deficits.<sup>32</sup> The study recommended that comprehensive assessment for people with BD should include cognitive, academic and neuropsychological testing.

Our study found a significant association between early age of onset of BD and WAIS-III subtests for Vocabulary ( $p=0.046$ ), Block Design ( $p<0.001$ ), Object Assembly ( $p=0.024$ ), Performance IQ ( $p=0.003$ ), and Full Memory Scale ( $p=0.010$ ), which would likely indicate impairment in visuospatial ability, motor skills and memory as has been reported in a study that described how earlier age of onset was associated with verbal memory impairment and psychomotor slowing.<sup>33</sup>

In terms of duration of illness, the current study found a significant negative association with processing speed domain ( $p=0.038$ ). The longer the duration the more impairment in processing speed. Also, a significant positive association with Orientation ( $p=0.027$ ), which improved with longer duration. However, findings were not consistent with research that suggested cognitive

impairment had no association with illness duration, type of episode or number of episodes.<sup>34</sup>

Findings in the current study suggest an association between cognitive impairment and number of episodes (performance and current information), which did not support a study that had been unable to exhibit such association.<sup>34</sup>

Many studies have reported that people diagnosed with BD who experienced a higher number of hospitalizations demonstrated poorer performance on cognitive measures as in Thompson 2005<sup>3</sup> who reported relationships between number of hospitalizations and several cognitive domains including verbal fluency, spatial memory, psychomotor speed and executive functions, which is consistent with our results in that a correlation between number of admissions and orientation, visual reproduction, paired associated learning test was found.

## Conclusion

Cognitive functioning for people diagnosed with BD who also experience euthymic is varied; however, this may be explained due to a lack of heterogeneity in published studies. Incomplete or slow recovery in BD and risk of recurrence may reflect sustained morbidities and functional disabilities even with the continuous long-term use of modern lines of treatments, and the resulting dysfunctions may define the presence of countless individual and illness variances. The disparity between development of specific, clinically effective and economically feasible rehabilitative interventions is notable. It may also reflect the variance in research methodologies used and the limited effort to measure or evaluate such interventions.

## Limitations

The present study assessed patients attending the outpatient clinic in Helwan Mental Hospital, and their relatives. This hospital serves usually low socioeconomic classes. Caution should therefore be used when generalizing the findings to other socioeconomic classes.

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## المخلص

**الهدف:** ان مرض الضطراب الوجداني ثنائي القطب جد خطير يتيزبته نوبات مزاجية وتغيرات تباين وتدهور للوظائف المعرفية وهي الوظائف لتثبيت لمننا من تنفيذ ماضي الاليوية وقد ثبتت الأبحاث التي تترجع هذه الوظائف فلها مضي قبل ظهور أعراض المرض. **لدراسة وأليات تنفيذ:** قدق من قبل هذا للبحث الذي أجرى على عينة عشوائية من 04 مريض هذا المرض في اس هذه الوظائف من خدي من قبل ولشولر للكفاء والذكورة كالمطون ام على عن ضربلة. **النتائج:** وجنا للتالي تراجع كل عيصر للقياس الذي للمرضى عن الامموعة لضربلة دلالة احصائية هامة جدا كما تراجع كل عيصر للمرضى ولشولر للذكورة التي للمرضى والحملة التي حتم على، للذكورة اليعقوية، مقاييس للذكورة اللطى (قد وجنا عاقبة احصائية هامة جدليين للتاريخ الاعلى التي على و عيصر اعتبار ولشولر للذكورة التي بهاجي مع الكفاء الاطى) وعاقبة اخرى ام قبيات تاريخ مدة المرض و عيصر رموز الأرق لمقاييس ولشولر للكفاء و عيصر للمرضى مقاييس ولشولر للذكورة كالمثبتنا عاقبة احصائية هامة قبيات زيادة عدد مرات النوبات وكل من عيصر للكفاء الاطى لمقاييس ولشولر للكفاء و عيصر للمرضى مقاييس ولشولر للذكورة.

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## Assessment of Anxiety Comorbidity in Patients with Schizophrenia

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### تقييم لقلق النفس لدى مرضى الفصام

بنة مجدي بلبر ايم، أشرف محمد الططاوي، خالد عبدالعزى محمد، نوى الشويهد عبدالهادي

#### Abstract

**B**ackground: Anxiety disorders are a common comorbidity for people with schizophrenia and an important phenomenon, which is overlooked by many psychiatrists such that outcomes of schizophrenia can be affected negatively. **Objectives:** The current study considers the commonality of anxiety comorbidity in Ismailia, Egypt and aims to assess the severity of anxiety symptoms in people with schizophrenia. Gender difference regarding this comorbidity and whether it happens independently of schizophrenia or is related to schizophrenia symptoms are also explored. We assessed the association between comorbid anxiety disorders and sociodemographic characteristics as well as variable clinical factors. **Method:** A total of 63 outpatients with schizophrenia attending Suez Canal University Hospital were recruited to the study, which followed a descriptive cross-sectional design. Measures used were the Positive and Negative Symptoms Scale (PANNS), Hamilton Anxiety Rating Scale (HAM-A) and semi-structured interview for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) for diagnosing anxiety. **Result:** Prevalence of anxiety disorders was (57.1%) with panic disorder and generalized anxiety disorder (GAD) being the most prevalent. The level of anxiety symptoms was moderate to severe in almost half of the patients. Symptoms reported by women were more severe. There was no significant association between the severity of anxiety symptoms and the severity of schizophrenia symptoms. **Conclusion:** Anxiety comorbidity is prevalent in schizophrenia. Diagnosis of anxiety disorders in schizophrenia is essential; however, it risks being missed at assessment.

**Key words:** Comorbid anxiety disorders, Schizophrenia

**Declaration of interest:** None.

#### Introduction

People who have psychotic disorders may have comorbid conditions,<sup>1</sup> such as anxiety disorders. This is particularly common in people with schizophrenia.<sup>2</sup> Anxiety disorders are the most prevalent of psychiatric disorders<sup>3</sup> although are not as widely researched as depression.<sup>4</sup> Some authors hypothesis that anxiety is an integral part of the development of schizophrenia in a significant number of cases.<sup>5</sup>

Anxiety disorder is a broad term covering several different forms of abnormal and pathological fears and anxieties (Peralta and Cuesta, 2001),<sup>6</sup> which include generalized anxiety disorder, panic disorder, phobias and obsessive compulsive disorder (Sadock and Sadock, 2003).<sup>7</sup> OCD became a separate diagnosis outside the classification of anxiety disorders according to Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Anxiety disorders are often comorbid with other mental health conditions.<sup>8</sup>

Review of the existing literature suggests wide difference of prevalence for anxiety disorder in schizophrenia

ranging from 30-85%.<sup>9</sup> A study in Brazil reported that at least 51% of patients with schizophrenia met criteria for at least one type of anxiety disorder.<sup>2</sup> In Turkey, a study of 82 outpatients with schizophrenia diagnosed 55 (67.1%) with at least one lifetime comorbid anxiety disorder.<sup>10</sup> Moreover, a work that studied racial disparity in the rate of determination of anxiety disorder in Caucasians and African-Americans revealed prevalence rates of 27% in Caucasians and 13% in African Americans.<sup>11</sup>

People with dual diagnoses are more likely to encounter a range of negative outcomes including increased levels of medication noncompliance, poorer treatment outcome, psychosocial problems, suicidal behavior, re-hospitalization, poorer mental health, and higher family burden.<sup>12</sup> Anxiety symptoms have a significant negative impact on the quality of life for people with schizophrenia. For example, people who experience panic attacks had elevated rates of co-occurring mental disorders, psychotic symptoms and health service utilization,<sup>13</sup> greater hostility and a lower function level.<sup>14</sup>

Although anxiety disorder is found to be comorbid with schizophrenia, it remains largely unrecognized by clinicians. An Australian study on 100 consecutively admitted in-patients with schizophrenia found that anxiety disorders were common (45%), and unrecognized by clinicians in almost all of the patients.<sup>15</sup> Considering that, the comorbidity of anxiety disorders with schizophrenia is a phenomenon and overlooked by clinicians, it is an important area of study that has clinical relevance in Egypt.

## Method

The current study uses a descriptive cross-section design and was carried out at Suez Canal University Hospital.

### Inclusion Criteria

1. Patients with schizophrenia who attended the outpatient clinics for follow up (who had capacity to give consent and information).
2. Patients who had a diagnosis of schizophrenia made by a Consultant Psychiatrist using the DSM-5 criteria.
3. Patients who demonstrated a willingness to be interviewed.

### Exclusion Criteria

1. Patients who had a history of neurological disorders, major physical conditions and psychoactive substance abusers.
2. Patients who were in acute psychosis.
3. Patients who have intellectual disability.
4. Patients who could not give informed consent.

## Measures

### Sociodemographic questionnaire

A sociodemographic questionnaire was used to obtain personal information, such as age, marital status, level of education, religious affiliation, and employment. Mental state examination formed part of the assessment, which included obtaining family history of mental health difficulties, age of onset of disease, duration of illness, number of hospitalizations and adherence to treatment.

### Semi-structured interview

A semi-structured interview using DSM 5 criteria for anxiety disorders assessed for generalized anxiety disorder (GAD), panic disorder, agoraphobia, social anxiety disorder, specific phobias, separation anxiety disorder and selective mutism. The Hamilton Anxiety Rating Scale for Anxiety (HAM-A) was also administered to assess symptom severity.

### Self-report questionnaires

Positive and Negative Syndrome Scale (PANSS; Kay, Opler, Fiszbein, 1987)<sup>16</sup>

The PANSS is self-report tool measuring symptom severity of patients with schizophrenia, published in 1987. It has been widely used in the study of antipsychotic therapy.<sup>17-18</sup> The PANSS was translated Arabic language using the back-translation method. Reliability of the scale was assessed by calculating internal consistency, interrater reliability and test-retest reliability. Construct validity was assessed using the Arabic version of the MINI-6. PANSS total scores were correlated with the Clinical Global Impression-Severity scale. The finding showed good internal consistency (0.92). Scores on the PANSS of the patients were much higher than those of the healthy controls. The PANSS showed good interrater reliability and test-retest reliability (0.92 and 0.75, respectively). In comparison with the MINI-6, the PANSS showed good sensitivity and specificity, which implies good construct validity of this version.<sup>19</sup>

### Hamilton Anxiety Rating Scale (HAM-A)

The HAM-A is one of the first rating scales developed to measure the severity of anxiety symptoms and is widely used in clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety).<sup>20</sup>

A score of 17 or less indicates mild anxiety. Scores ranging from 18 to 24 indicate mild to moderate anxiety severity. Scores of 25 to 30 indicate a moderate to severe anxiety severity.<sup>21</sup>

### Sample size

Sixty-three patients were included in the current study according to the following equation  $n = z^2 pq / E^2$  Where:

$Z=1.96$  (the critical value that divide the central 95% of the Z distribution from the 5% in the tail).

$E$ =margin of error, 3%.

$P$ =sample proportion,  $so$ = prevalence of Schizophrenia  $\approx$  1.5%.<sup>22</sup>

$Q=1-p$

$So, N=63$

The IBM SPSS Statistics for Windows, Version 24 was used for analysis. Qualitative data were described using numbers and percentages. Comparison between the two

different groups regarding categorical variables was tested using Chi-square test. For normally distributed data, comparison between two independent populations were done using independent *t*-test.

## Results

The current study involved N=63 patients with a diagnosis of schizophrenia; 30 women (47.6%) and 33 men (52.4%) who attended the outpatient psychiatric clinics of Suez Canal University Hospital and met the criteria for diagnosis of different psychiatric disorders according to DSM 5.

Table 1 shows the sample characteristics. Participants ranged in age from 18 to 45 years. Unemployed patients represented (65.1%) and (52.4%) had a moderate level of education, (27%) low and (20.6%) high level of education. The sample size comprised 54% who were single, 25.4% divorced and 20.6% married. Family history of schizophrenia was negative in 68.8% and positive in 30.2%. In total, 92.1% were treatment compliant. Number of hospitalizations was 2-4 times in (41.3%) of the sample and the rest divided between more and less. The mean age at onset of schizophrenia was 22 years and the mean for duration of illness was 14.25 years. The prevalence of anxiety disorders in the sample was (57.1%).

Table 2 shows a statistically significant association between marital state and comorbid anxiety ( $p < .05$ ).

Table 3 shows that compliance with treatment, number of hospitalizations and age at onset had a statistically significant association with co-occurrence of anxiety disorders ( $p < .05$ ); 63.9% of the comorbid anxiety patients had experienced anxiety disorder onset prior to onset of

schizophrenia. Regarding panic and social phobia, the onset of anxiety preceded the onset of schizophrenia in most cases while GAD onset succeeded in more than half of the cases. Seven patients (11.11%) had more than one anxiety disorders. The current study classified panic into two panic disorders with agoraphobia, two panic attacks specific to GAD and three phobias specific to social phobia.

Regarding both genders, the prevalence of comorbid anxiety was higher in women. GAD was twice as likely in women than men, but social phobia was two times greater in men. Panic disorder and the combination of more than one anxiety disorder was somewhat higher in women. Among the total sample, panic disorder represented the greatest prevalence (22.22%), followed by generalized anxiety disorder (GAD) at 14.3% and social phobia at (9.5%).

Table 4 and Figure 1 show that 47.2% of the sample had mild symptoms of anxiety while 38.9% and 13.9% had moderate and severe symptoms, respectively. Comparison between both genders indicates a statistically significant association between gender and severity ( $p < .05$ ) as women reported more severe of anxiety symptoms.

Table 5 shows that positive and negative symptoms represented no significant difference between the two groups; on the other hand, general symptoms were significantly different being higher in the comorbid group.

Table 6 shows that the increase in severity of anxiety is accompanied by an increase in the total PANSS score, but not to the degree that would likely represent a significant difference.

**Table 1.** Sample characteristics

		Frequency (n)	Percentage (%)
<b>Total sample</b>	Patients with Schizophrenia	63	100
<b>Gender</b>	Male	33	52.4
	Female	30	47.6
<b>Age groups</b>	18-30	22	34.9
	31-45	26	41.3
	46-60	12	19
	60>	3	4.8
<b>Employment</b>	Yes	22	34.9
	No	41	65.1
<b>Level of education</b>	High	13	20.6
	Moderate	33	52.4

Assessment of Anxiety Comorbidity in Patients with Schizophrenia

	Low	17	27
<b>Marital state</b>	Married	13	20.6
	Divorced	16	25.4
	Single	34	54
<b>Family history</b>	+ve	19	30.2
	-ve	44	68.8
<b>Compliance with treatment</b>	Compliant	58	92.1
	Non	5	7.9
<b>Number of hospitalization</b>	one time	21	33.3
	2-4times	26	41.3
	>4	14	22.2
	Chronic	2	3.2
<b>Age at onset of schizophrenia (by years)</b>	M±SD	22.1±3.7	
<b>Duration of schizophrenia by years)</b>	M±SD	14.25±10.67	
<b>Comorbid anxiety</b>	Yes	36	57.1
	No	27	42.9
	Total	63	100

**Table 2.** Sociodemographic characteristics of patients with and without anxiety disorders

	With comorbid anxiety, n (%)	Without comorbid anxiety, n (%)	$\chi^2$	p value
<b>Gender</b>				
Male	17(47.20)	16 (59.30)	.896	0.344
Female	19(52.80)	11 (40.70)		
Total	36	27		
<b>Age</b>			6.887	0.076
18-30	16 (44.40)	6 (22.20)		
31-45	12 (33.30)	14 (51.90)		
46-60	5 (13.90)	7 (25.90)		
>60	3 (8.30)	0 (0)		
<b>Employment</b>			1.886	0.170
Employed	10 (27.8)	12 (44.4)		
Non-employed	26 (72.2)	15 (55.6)		
<b>Level of education</b>			2.411	0.300
High	5 (13.9)	8 (29.6)		
Moderate	20 (55.6)	13 (48.1)		
Low	11(30.6)	6 (22.2)		
<b>Marital state</b>			8.540	0.014**
Married	3 (8.3)	10 (37.0)		

Divorced	12 (33.3)	4 (14.8)		
Single	21 (58.3)	13 (48.1)		

**Table 3.** Comparison between patients with schizophrenia comorbid with anxiety and those without comorbid anxiety

	With comorbid anxiety (n=36)	Without comorbid anxiety (n=27)	$\chi^2$	p value
	N (%)	N (%)		
<b>Family history</b>				
+ve	14 (38.9)	5 (18.5)	4.084	.130
-ve	22(61.1)	22 (81.5)		
<b>Compliance with treatment</b>			4.073	.044**
Compliant	31(86.1)	27 (100)		
Non-compliant	5 (13.9)	0 (0)		
<b>Number of hospitalizations</b>			8.615	.035**
1 time	12 (33.3)	9 (33.3)		
2-4 times	12 (33.3)	14(51.9)		
<b>&gt;4 times</b>	<b>12 (33.3)</b>	<b>2 (7.4)</b>		
Chronic	0 (0)	2 (7.4)		
<b>Age at onset of schizophrenia</b>	21.39±3.37 Range (15-30y)	22.96 ±3.99 Range (19-35y)	T 1.693	P value .047**
<b>Duration of schizophrenia</b>	13.95±11.08 Range (2-40y)	14.67±10.30 Range (1-40y)	0.264	.396

**Table 4.** Severity of comorbid anxiety and gender difference according to the HAM-A

Severity of comorbid anxiety	Men, n (%)	Women, n (%)	Total	$\chi^2$	p value
<b>Mild</b>	12(64.7)	5(31.6)	17 (47.2)	7.164	.028**
<b>Moderate</b>	4(29.4)	10(47.4)	14(38.9)		
<b>Severe</b>	1 (5.9)	4(21.1)	5 (13.9)		
<b>Total</b>	<b>17(100)</b>	<b>19(100)</b>	<b>36(100)</b>		

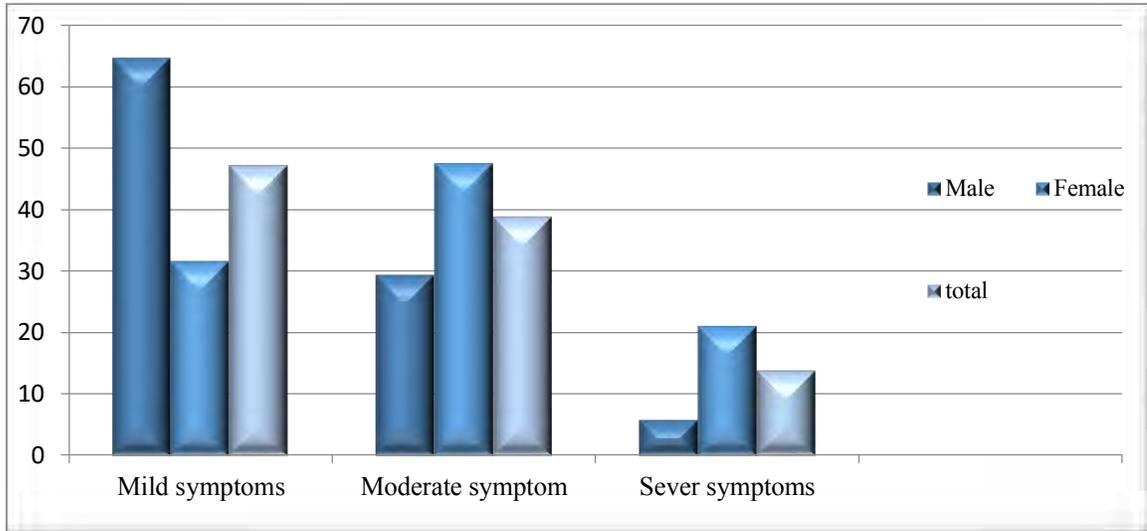


Figure 1. Severity of anxiety symptoms among patients suffering anxiety disorders

Table 5. Comparison between patients with and without comorbid anxiety via PANSS

PANSS	Without comorbid anxiety		With comorbid anxiety		T	p value
	M	SD	M	SD		
Total +ve	11.70	4.149	12.92	5.239	.992	.325
Total -ve	11.70	4.065	12.47	5.028	.650	.518
Total G	24.37	5.001	27.72	7.122	2.088	.041**

+ve=positive symptoms scale, -ve =negative symptoms scale, G=general psychopathology scale

Table 6. Relation between severity of comorbid anxiety and severity of schizophrenia symptoms (PANSS scores)

Severity of anxiety	N	Mean	standard deviation	Test of homogeneity	p value
Mild	17	50.9412	17.10800	.944(>.05) Homogenous	.435
Moderate	14	53.0000	11.41524		
Severe	5	60.8000	14.80540		
Total	36	53.1111	14.76439		

## Discussion

The current study sample comprised 33 men and 30 women (M=36 years; SD ±11 years). Sociodemographic characteristics showed no significant association with anxiety co-morbidity except for marital state ( $p=.014$ ) with 58.3% of the co-morbid group single and 33.3% divorced. A similar study in Turkey revealed no significant association with sociodemographic characteristics except level of education whereby higher educational levels showed more prevalence of

comorbidity.<sup>23</sup> Other studies reported no significant association.<sup>18-21</sup>

Regarding clinical factors, our results showed significant association between age at onset of schizophrenia, number of hospitalizations, compliance with treatment and comorbid anxiety disorders, which reflects the severity of the symptoms with poor management.

Our present study revealed that prevalence of anxiety disorders among patients with schizophrenia was 57.1%, which supports a similar study of 82 outpatients in Turkey

of whom 67.1% were diagnosed with at least one lifetime comorbid anxiety disorder.<sup>10</sup>

Furthermore, there are different studies, which reported rates for anxiety disorders in patients with psychosis between 30% and 62%.<sup>4,10,13,24,25,26</sup> Higher prevalence was reported in a psychiatric research and training hospital in Turkey where 86.2% of the patients with a diagnosis of schizophrenia met the anxiety disorder criteria.<sup>15</sup>

Other studies found lower prevalence (15%) comorbidity rate for anxiety disorders in patients with non-affective psychosis that included schizophrenia and schizophreniform disorders.<sup>27</sup> A previous work that studied racial disparity in the rate of diagnosis of anxiety disorder in Caucasians and African-Americans with schizophrenia reported 27% anxiety disorder diagnosis rate in Caucasians and 13% in African Americans, which they attributed to under-reporting of anxiety symptoms in African-Americans.<sup>28</sup> The higher rates may be explained by the measurement of lifetime rates instead of current rate of anxiety disorder.<sup>29</sup>

Panic disorder represented the most prevalent comorbid anxiety disorder for 22.22% of the current sample, which supports most of the published studies; for example, a British study of 20 outpatients with schizophrenia reported prevalence of panic disorder of 20%.<sup>30</sup> A recent study from India reported the prevalence of panic disorder in 18.28% of patients with schizophrenia.<sup>31</sup> While Braga *et al.* reported less prevalence (5.7%).<sup>32</sup> Variance may be due to different research methodology.

Comorbid generalized anxiety disorder represented 14.7% of our sample which was higher than results from other studies. A study of 367 outpatients in Nigeria revealed that GAD was the most prevalent among patients with schizophrenia (6.3%), while Braga *et al.*, found that GAD prevalence was (9.4%).<sup>29</sup>

Comorbid social phobia represented 9.5% of our sample, which was in close agreement with the study in India that reported a 9.7% prevalence of social phobia in a sample of 93 outpatients with schizophrenia.<sup>31</sup> Another study in Turkey reported a comparable percentage of 13.4% of 82 outpatients.<sup>10</sup> Other studies have reported higher prevalence, e.g. 36.3% reported by Pallanti *et al.*<sup>26</sup>

The current study found mild levels of anxiety symptoms (17 of the 36), moderate anxiety (14 of the 36) and severe anxiety (5 of the 36), which might indicate that more than half of the patients with comorbid anxiety still had a problem that was not relieved through treatment. This is similar to Lysaker and Salyers who found that the severe anxiety group had more severe hallucinations.<sup>33</sup>

Women showed greater comorbidity of anxiety disorders than men, which reflects societal differences experienced

by both genders. This observation supports previous studies that report generalized anxiety disorder to be twice as common in women compared with men.<sup>34</sup>

The present study revealed no significant association between PANSS scores and developing anxiety disorders. However, there is significant association between general psychopathology and anxiety comorbidity, which may support Cooper and Michail *et al.* who concluded that the varying nature of the association with the PANSS subscales suggests that anxiety and psychosis are separable constructs.<sup>35-36</sup>

Nevertheless, Mazeh *et al.*<sup>37</sup> noted that comorbid anxiety disorders in schizophrenia have been associated with delusions and hallucinations (as assessed by the PANSS) although absent from the general psychopathology subscale of the PANSS.<sup>38</sup>

In addition, we found that age at onset of anxiety disorders preceding that of schizophrenia was found in 63.9% of cases; in panic disorders (10 of 14 patients); and, in social phobia (5 of 6 patients). These findings supported a study from India that identified earlier onset of panic disorder in 9 of the 17 patients with schizophrenia suffering from comorbid panic disorder. Moreover, the onset of social anxiety disorder was prior to onset of the schizophrenic illness in most cases (8 of 9).<sup>31</sup>

From the present study and previous studies, anxiety disorders are prevalent among patient with schizophrenia, which merits wider recognition from the managing psychiatrists.<sup>39</sup>

## Recommendation

More studies are needed in the field of psychiatry to understand the relationship between schizophrenia and anxiety disorders and to develop better treatment strategies for all types of comorbid anxiety disorders.

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## Underreporting Bullying Experiences among Nursing Students in Clinical Training Settings: A Descriptive Study

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محقق طبيّات

### Abstract

**Background:** The experience of bullying in clinical settings is a widespread problem across the world that has gained limited attention in the nursing profession. Supporting nursing students to report any experiences of bullying is crucial to maintaining a healthy learning environment and improving patient care. **Objective:** The current study evaluated the experiences of bullying as reported by student nurses in the College of Nursing at Sultan Qaboos University in Oman. **Method:** A descriptive design was used. A sample of 161 undergraduate nursing students was recruited from the university using a simple randomization method. Student experiences were assessed via the Student's Experience of Bullying during Clinical Placement (SEBDPC) and socio-demographic information was also collected. **Results:** Overall, 61.4% of students in the current study had experienced bullying at least once during their clinical training; however, 27.8% of bullied students reported the violent behaviors officially, 70.4% of them reported to a faculty member. Almost half of the reported cases were resolved to students' satisfaction. A key reason 61.1% of students did not report that they had been bullied was their belief that the behaviors were simply part of their job. Most students were not aware of university-wide policies that were in place to address bullying behaviors in the college and the clinical settings. **Conclusion:** Raising awareness about the problem of bullying within the nursing profession is crucial to dealing with it effectively. Helpful approaches for doing so would require holistic solutions, clear processes for reporting bullying and ways to ensure that the impact of bullying highlight on students does not dissuade them from pursuing their chosen careers.

**Keywords:** Bullying, Nursing students, Workplace violence, Reporting

**Declaration of interest:** none

### Introduction

Health care providers are facing more violent behaviors than ever before. Nurses are at the top of all health multidisciplinary professionals who are exposed to considerable acts of bullying.<sup>1</sup> Bullying refers to "situations where a person repeatedly and eventually feels subjected to negative treatment on the part of one or more persons, and where the person(s) exposed to the treatment have difficulty in defending themselves against these actions".<sup>2</sup>

It has been estimated that more than half of health care workers, including nurses, had experienced at least one incident of violent behaviors during their career, either physically or emotionally.<sup>3</sup> Similar to registered nurses, nursing students are vulnerable to different categories of bullying in their clinical training,<sup>4</sup> which might be due to poor educational environment, limited experiences, insufficient knowledge and skills, accelerated academic load and responsibilities, less awareness of cultural norms and care opportunities, dissatisfaction toward self, poor

clinical support, and the vision that nursing, in general, is less important compared to other health professions, such as medicine or pharmacy.<sup>5</sup>

As soon as the students move toward the actual training courses (e.g. adult nursing care, maternal nursing care, or psychiatric nursing care), either in hospital or in the community, they quickly become responsible for communicating with multidisciplinary teams, patients, families, administrators, and frontline workers. This is in addition to their clinical instructors and colleagues, for example; and many are likely to have to some medications, provide care to patients in different health conditions, take care of terminally ill patients, as well as be required to complete college assignments and pass exams. Therefore, it can be suggested that being a student nurse is to have the likelihood of greater exposure to violent behaviors in many different contexts and these often risk being played down by health team members,

workers, colleagues, patients, visitors, or clinical instructors.<sup>4,6</sup>

Consequently, some groups in society may move to control or interpret the bullying behavior or devalue the experience and achievement of nursing students. People who have experienced bullying may feel more aggressive toward the person or persons doing the bullying; they may negate their own feelings about being bullied; and, may also come to believe that they are somehow inferior.<sup>7,8</sup> It is also the case that other people perpetuate the bullying cycle and repeat these behaviors in their future careers.<sup>9</sup>

Reporting clinical bullying among nursing students is essential. Students should be encouraged to gain confidence in speaking and learn to become effective communicators so the prevalence of such behaviors can be reduced.<sup>10</sup> In bullying cultures, where such behaviors are known to be norms and accepted by those in power, there is often a sense that the workplace is unsafe and that the bullying will not be acknowledged.<sup>11</sup> This naturally leads to many feeling unable to handle abusive situations, which can result in them do nothing, put up barriers, or engage in unhealthy coping behaviors such as smoking, drinking, or using substances.<sup>12</sup> There is limited research on nursing students' beliefs about reporting and responding to bullying, particularly in Oman. Understanding these challenges may provide important information from which interventions can be developed. Therefore, the aim of the current paper is to determine the extent of underreporting of bullying behaviors perceived by nursing students in clinical settings.

## **Methodology**

The current study was conducted at the College of Nursing at Sultan Qaboos University. A descriptive, cross-sectional research design was utilized. Students in the College of Nursing were recruited by using a random sample method. Power calculation indicated that 220 participants were needed for an effect size of 0.5 ( $\alpha = 0.05$ ,  $p = 0.80$ ).

Ethical approval was obtained from the Research and Ethics Committee of the College of Nursing at Sultan Qaboos University (SQU). A student email list was provided by the college administration office from which 220 participants were selected randomly. An email was sent to each student inviting them to participate in the study. The purpose of the study, design, benefits, rights of voluntary participation and withdrawal were explained. According to SQU, students are identified by a unique university number rather than by their name. To ensure anonymity, participants were identified using the unique

number only. The main self-administered questionnaire required an estimated 20 minutes to complete and students were asked to return their completed version via email. No other identifiable information was collected. The survey process was completed over three months (October 2018 - December 2018).

Of the 220 participants who were sent questionnaires, there were 183 responses of which 161 met the study eligibility criteria, which included students who were willing to participate in the study; studying in the bachelor's degree; had completed their foundation program (English, Computer Skills, and Mathematics); and, had started their clinical training courses.

A self-administered questionnaire was used in the current study to achieve the study objectives. It was divided into two sections: (1) demographical data, and (2) the Student Experience of Bullying during Clinical Placement (SEBDPC) Questionnaire. In the section for demographic data, the students were asked their gender, age, level of academic years, and type of education program. The second section is the Student Experience of Bullying during Clinical Placement (SEBDPC) questionnaire. Indeed, this questionnaire was adapted from the work of Hewett (2010), who developed it by assessing the bullying experiences of 218 undergraduate nursing students in South Africa. The content validity of the original tool was established via a pilot study. It was comprised of five sections with 66 items based on workplace bullying including intimidation, bullying or verbal abuse, non-physical violence, and reporting and management of bullying. The questionnaire mainly uses closed-ended questions that are rated on a four-point rating scale 1 'Never' (0 times); [2] 'Occasionally' (1-2 times); [3] 'Sometimes' (3-5 times) and [4] 'Often' (>5 times).<sup>13</sup> Permission to use the questionnaire was obtained from the author via email.

## **Result**

The Statistical Package for the Social Sciences (SPSS 23) at the 0.05 level of significance was used. The mean and percentage were used to describe the results; chi-square was performed to determine the major statistical differences between the variables.

Out of the 220 distributed questionnaires, 183 undergraduate students who were enrolled in an undergraduate course at Sultan Qaboos University, completed and returned the questionnaire, giving a response rate of 74%. In total, 161 students met the

research criteria. The sample was selected randomly, and students were assured of their anonymity and confidentiality through the consent form that was sent by email. The survey took 20 minutes to complete. It was reviewed by the Research and Ethics Committee of the college prior to data collection. The ages of the respondents ranged from 18 to 25 years, and the mean age was 21.7 years. The majority of the participants were women (82.6%), single (88.2%), lived on campus (68.9%), and studying in their 5<sup>th</sup> academic year (29.2%). Overall, 61.4% of our students reported that they had experienced bullying behaviors at least once during their clinical training; 14.3% indicated that they were not sure

about such experiences; and, 24.2% reported that they hadn't experienced any such behaviors at all. Further, 23% reported that they had occasionally witnessed violent behaviors among other nursing students compared to 9.3% who reported it as happening sometimes, and 1.2% regarded it as having happened often.

The current study highlighted a significant difference between academic year ( $p = 0.006$ ), marital status ( $p = .000$ ) and reporting although there was no significant differences between age and reporting ( $p = 0.200$ ), as well as gender and reporting ( $p = 0.835$ ) (Table 1).

**Table 1.** Distribution of underreporting bullying experiences among students' demographical variables

Demographic variable	Number	Percentage	Degree of freedom	Chi-square result: significant with bullying reports
<b>Age</b>				
18-29 Years	97	60.25	2	Not significant F = .3222, $p = 0.200$
21-23 Years	62	38.51		
24-26 Years	2	1.24		
<b>Gender</b>				
Male	28	17.4	2	Not significant $t = .317$ $p = .835$
Female	133	82.6		
<b>Marital Status</b>				
Single	142	17.4	2	Significant $t = 10,249$ $p = 0.006$
Married	19	82.6		
<b>Living Arrangement</b>				
On campus	111	68.9	2	Not significant $t = .211$ , $p = 0.900$
Off campus	50	31.1		
<b>Academic year</b>				
2 <sup>nd</sup> year	14	8.7	8	Significant F = 38.194, $p = 0.000$
3 <sup>rd</sup> year	43	26.7		
4 <sup>th</sup> year	32	19.9		
5 <sup>th</sup> year	47	29.2		
6 <sup>th</sup> year and above	25	15.5		

Most students experienced bullying behaviors in hospitals (52.5%) followed by community settings (32.3%). Further, the main sources of bullying among nursing students in clinical settings were other medical students (28.3%) followed by patients (18%), and doctors (14.1%) respectively; however, the study found that the most common type of bullying perceived by the students was emotional bullying (33.3%) followed by sexual (27.3%).

The most common consequence of bullying among nursing students was leaving the profession altogether (31.3%). The study also indicated no significant differences in reported bullying among different training sites ( $p = 0.102$ ), type of bullying ( $p = 0.092$ ), and its sources ( $p = 0.506$ ) (Table 2).

**Table 2.** Distribution of underreporting bullying experiences and bullying behaviors characteristics

Demographic variable	Number of bullied students	Percentage	Number of unreported cases	Percentage of underreporting bullying behaviors	Degree of freedom	Significant with bullying reports
<b>Training settings</b>						Not Significant $F = 4.575, p = 0.102$
College	15	15.15	7	46.67		
Hospitals	52	53.52	42	80.77	2	
Community settings	32	32.33	23	71.87		
<b>Bullying source</b>						Not Significant $F = 8.285 p = .506$
Doctors	14	14.14	11	78.57		
Other health team	12	12.12	9	75	9	
College faculty/Instructors	6	6.06	6	100		
Other Students	28	28.28	22	78.57		
Patients	18	18.18	11	61		
Relatives	11	11.11	6	54.54		
Others	10	10.10	7	70		
<b>Type of bullying</b>						Not Significant $F = 6.437, p = 0.092$
Verbal	15	15.15	8	53.33		
Sexual	27	27.28	20	74.07		
Emotional	33	33.33	27	81.81	3	
Physical	24	24.24	17	70.83		

Results indicate that 27.8% of bullied students had reported the violent behaviors compared to 72.2% who didn't; most bullied students reported the experience to their college faculties (70.4%), and college administrators (14.8%). In fact, 51.9% of students who said they had been bullied also indicated that their issues had been resolved

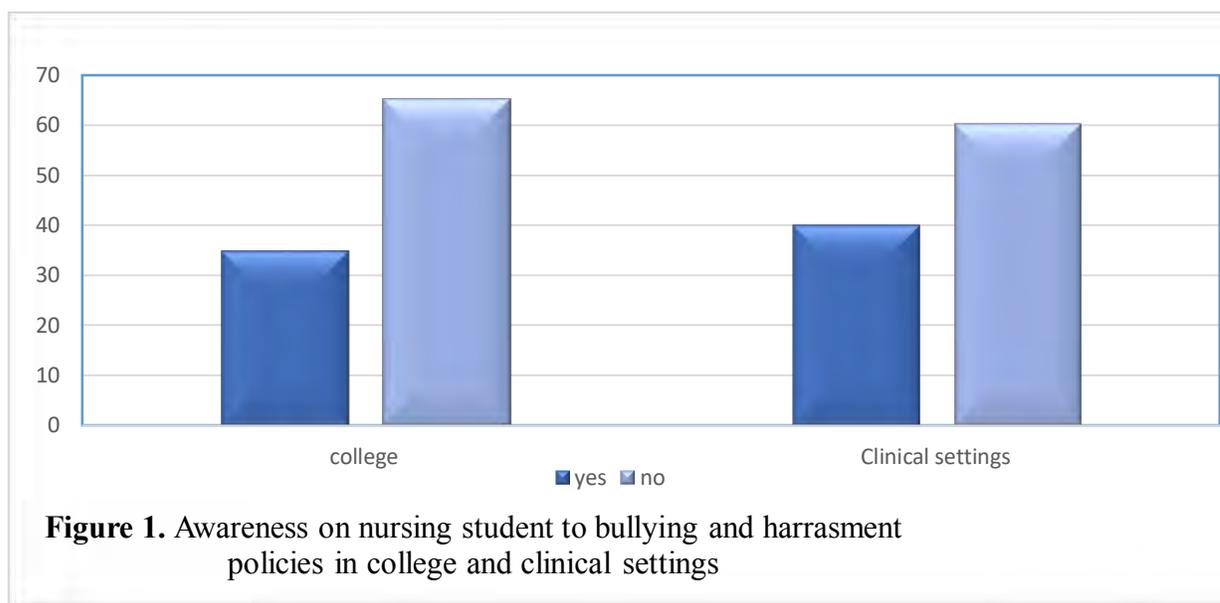
to their satisfaction; 14.8% stated the issues had not been resolved to their satisfaction, and 22.2% had not resolved at all. The main reasons for underreporting were: the belief that bullying behaviors came with the job (61.11%); and, feeling afraid of being victimized (18%) (Table 3).

**Table 3.** Pattern of reporting bullying among nursing students

Item	Frequency	Percentage
<b>Reporting bullying behaviors</b>		
Reported	27	27.3
Not reported	72	72.7
<b>To whom students reported</b>		
University admin	4	14.8
College admin	2	7.4
Clinical faculty	19	70.4
Police	2	7.4
<b>Action after being reported</b>		
The issue was resolved to my satisfaction	14	51.86
The issue was not resolved to my satisfaction	4	14.8
No action was taken	6	22.22
Unsure if an action was taken	3	11.12
<b>Reason given for not reporting</b>		
It is part of the job	44	61.11
Nothing will be done about	7	9.72
Afraid of being victimized	13	18.05
Other	8	11.11

With regard to students' awareness of policies available to handle such issues in the college as well as in the clinical settings, most students reported that they were not aware

policies existed that could address the bullying. This was case for college (60.2%) and clinical settings (65.2%), respectively (Figure1).



## Discussion

The current study corroborates the findings of previous studies that indicate nursing students are exposed to high rates of bullying compared to others, which can have adverse consequences on their academic performance, their health, and their delivery of care.<sup>6</sup> Although nursing students indicated a high level of bullying experiences, they also reported occasionally having witnessed such behaviors in their last academic year (23%) compared to approximately 40% in previous studies.<sup>14</sup> Indeed, 37.5% of the bullied students reported such behaviors compared to 62.5% who didn't, which is largely similar to previous works that examined this phenomenon within the nursing profession.<sup>15</sup> Students in the current study raised these issues mostly to their clinical instructors (70.4%), and college administrators (14.8%), who were able to model effective conflict resolutions and effective feedback to support the ego of the students and this also was more likely to foster open communication.<sup>16</sup> Faculty members can act as positive role models although some do misuse their power, give poor feedback, fail to address the bullying, and/or have been unable to protect their students. This may leave students with negative perceptions that bullying is accepted practice within the nursing profession.<sup>17</sup> Approximately half of reported cases (51.9%) were resolved to the students' satisfaction, although a quarter of students indicated that no action was taken to resolve their issues, which was a slightly less pronounced trend than has been the case in previous

findings.<sup>14</sup> One reason behind that may be down to the absence of special policies regarding workplace violence in clinical training settings,<sup>18</sup> or the lack of awareness of such policies as the current results suggest.

Some research does suggest that bullying within the nursing profession is still underreported.<sup>19</sup> Indeed, of the 62.5% from the current study who didn't report their experiences of bullying, 40.3% indicated that the main reasons for their decision were: that they had considered bullying to be part of the job; they were afraid of being victimized; and/or, assumed the matters they raised would not be addressed. Inconsistent with this line is a study that found nurses who agreed that bullying is an expected part of their job reported significantly fewer violent incident to their superiors.<sup>20</sup> A further study<sup>21</sup> found nurses are more likely to be "good nurses" making themselves silent in order to avoid conflict with others, which devalued their contribution to their patients' health care, affected their social life and quality of care, job stress, increased their job dissatisfaction, increased missed working days, created conditions of unfairness and exploitation, and meant that they were more likely to leave the profession. This finding was supported in another study that suggested nursing students are probably not reporting such behaviors due to having insufficient skills required to resolve them, and due to them also perceiving themselves as powerless to change such behaviors.<sup>22</sup> Thus, students identified these behaviors as a part of their job, less important to be reported, and allowed it to reach

a certain threshold before formally reporting what had been happening to them.<sup>13</sup> Maladaptive coping strategies by students included acting as though nothing had happened, avoiding seeking assistance from professional parties<sup>15</sup> and avoiding negative consequences by staying silent.<sup>23</sup> Findings from the current study demonstrate that bullying among nursing students has been normalized and is endemic. The silence from nurses is all too often for the sake of the continuum of patient care, which can ultimately lead to burnout and shorter careers.<sup>24</sup>

As regards students' socio-demographic variables, neither age nor gender nor living arrangements correlated with reporting bullying, which is supported in other studies.<sup>25</sup> On the other hand, our results highlight significant differences in reporting bullying experiences among students and marital status as well as academic year. Single students were less likely to report experiences of bullying compared with those who were married (90.2% and 9.8% respectively). Past studies found that the majority of nurse who had experiences of bullying in clinical settings were single, which suggests that insufficient social support can have adverse consequences for those in the nursing profession.<sup>26-28</sup> Further, student nurses in their 5<sup>th</sup> academic year were more likely to avoid reporting bullying than others. The less the students were engaged in clinical practice, the higher their tendency to report bullying. Indeed, second year students were more likely to report feeling overwhelmed by bullying behaviors whereas this tended to subside across the study journey. Students may perceive themselves as inevitable targets rendering them prone to accepting that the behaviors are part of being in the nursing profession.<sup>28</sup> A clear possibility arising from this outlook, is that violence risks becoming a fact for the nursing profession and students may feel increasingly less able to establish trust in relationships with those who have bullied them.<sup>7, 8</sup>

The current study found no significant differences in reporting bullying among different training sites, bullying types and bullying source; despite the results, it seems that the majority of bullying behaviors that had occurred in hospitals went underreported (80.7%) followed by community settings (71.8%), and college (15.3%). Further, there were similarities for emotional and sexual bullying (81.8%) and (74.1%) respectively. This was mostly because some students do not apply the term of violence to their bullying experiences unless the act has caused physical harm. Findings in the current study were supported in other research that highlighted a pattern of underreporting sexual and emotional bullying among nursing professionals.<sup>13, 23</sup> This may be a consequence of the stigma that is often associated with such behaviors,

which means that open discussion with others about bullying may be discouraged.<sup>29</sup>

When faced with emotional or sexual bullying, most nursing students reported that they addressed these issues passively on their own. For example, they might choose to adjust their expectations rather than share their emotions with someone in high authority.<sup>30</sup> Students in the current sample said they avoided reporting bullying when the person or persons bullying them were their instructors or college staff (100%) and this also appeared to be the case when the bullying was by their colleagues (78.6%). Studies have established that the root of bullying in the nursing profession has its origins in academic settings.<sup>6</sup> This is because faculty members may be more likely to critically judge their students performances, critique their achievement, deny acknowledgment for good work, promote unfair learning, or deny their learning opportunities. This may result in student frustration and feelings of powerlessness. Given this potential power imbalance, student nurses report believing there would be too much to lose if they argued against or confronted the academic faculty.<sup>12</sup> This also risks students losing trust in their teachers, which could ultimately lead to devalue themselves or colleagues.<sup>31</sup>

A concerning issue regarding bullying policies has been addressed in the current study. More than 60% of the students in our study were not aware of bullying policies either in the college or clinical settings. The result is congruent with past studies that showed the most nurses were not aware of anti-bullying policies.<sup>32</sup> Procedures and policies for reporting violence among nursing students as well as staff should be clear and consistent, and students should have access to medical care and counseling if needed.<sup>33</sup> Bullying among nursing students is significantly underreported. Addressing bullying in practice is crucial to raise the awareness of its existence, to develop processes for valuable reporting, and investigate the problem and its impact on students pursuing careers in nursing. Policies to be formulated should address the following recommendations for both nursing colleges and clinical training settings:

- Establish a workplace committee comprised of students, college faculty members, administrative staff, and stakeholders to create and modify existing strategies that prevent any form of violence and enhance its reporting system.
- Establishing a clear procedure of reporting such incidents in a confidential, respectful and supportive manner.
- Produce a risk assessment sheet to identify potential behaviors characteristic of bullying.

- Provide nursing students with aggression de-escalating training programs as well as healthy coping strategies, communication skills, and a positive attitude.
- Include standardized violence management practices in the nursing curriculum to facilitate the process of recording these behaviors in clinical settings.
- Reassure/remind all nursing students of the Provision in the American Nurses Association Code of Ethics, which is congruent with local culture.

## Conclusion

Nursing students do encounter bullying during their learning journey, which has many feeling powerless, frustrated, and rethinking their future learning opportunities. Overall, 61.4% of our students had experienced bullying at least once during their clinical training; however, 27.8% of bullied students had reported the violent behaviors officially whereby half of this issue could be resolved to the students' satisfaction. The majority of the students were not aware of policies that address this phenomenon, therefore, schools of nursing can hold the key to modifying the learning environment in order to facilitate respectful and dynamics interactions relevant to clinical learning settings.

## Limitations

First, the self-administered questionnaire items related to bullying experiences that were retrospective in nature, e.g. in the last year. This may result in bias. Further research should address this issue and seek to extend the findings of the current study. Second, the proportion of male students in the sample was too small to generate clear explanations as to the relationship among some research variables. Future research may explore that properly. Third, the definition of bullying may differ across cultures. The self-administered questionnaire used in the current study was designed for non-Arabic countries like Oman. Certain terms or items may have been misinterpreted in the online survey that the nursing students completed. Students may or may not have considered some behaviors to be characteristics of bullying.

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الذهنية عند الأطفال واليافعين قديكون عامل مخاطرة للجرب قبل طراب ذهلي<sup>12</sup> أوبعض طربا النفسية أخرى غير ذهنية مثل الانقباض<sup>2</sup>.

تشهد الظواهر شبه الذهنية عند الأطفال واليافعين بمعدلات أعلى من معدلات قوعها عند البالغين فتمتدديت مراجعة في هيئة إن معدل قوعها عند الأطفال البعمر 6-12 سنة من 10% ومعدل قوعها عند اليافعين بعمر 13-18 سنة من 0.1%<sup>11</sup>. قد يقتصى منح منح معي لعملي عينة منطبة وطبيقي يلين لنتلغ 616 ايفلع أسلبي بعمر 12-16 سنة قوع ونجات لظواهر شبه الذهنية فنيون وجود إماش انفس معي عند 13.0% من اليافعين، وإماش انفس معي عند 16.2% ولفكار زوية عند 13.1%<sup>3</sup>.

### مآل لظواهر شبه الذهنية

لمعظم لظواهر شبه الذهنية طوية عبارة عيشتتخي مع الوقت، لذي م عند اليافعين<sup>9</sup> ولم يمسجل ليتمرارها مع الوقت إلا في حالات قليلة فقط لمبت مرتل مدقريتي في 36% من للاح الانفسى درلسة ثبتت في أقال<sup>18</sup>، في 20% من للاح الانفسى درلسة تبطلت ثبتت في 1612 مراق<sup>10</sup>، في 28.0% من للاح الانفسى عينة من 1663 مراقين<sup>10</sup>.

ورغم لفقسق تنذر لظواهر شبه الذهنية بواقعا خطر الإرب قبلصام<sup>16</sup>. فسفي درلسة تبطلت 821 يفع لمللي لمبت مرتل مدقمل يسنوات، وجد أن 38.3% من لفين شخص عن دمضطراب ذهلي في هذة الدرلسة كلوا قد مروا سبق لظواهر شبه ذهنية واحدة في الأمل، وأن 16.0% في مكلوا قد مروا سبق لظواهر شبه ذهنية في الأمل<sup>26</sup>، ولك نتيقي معدلت حول لظواهر شبه الذهنية لى مضطراب طلي في قضا ألتقديتت مراجعة في هيئة وتلجلب عدي أن معدل لتحول مذليغ 6.10%، وشركل لك 3.1 ضيغ ل معدل حدوث لذهان عند البالغين مع عرض سبق لظواهر شبه الذهنية ولللاغ 6.10%<sup>21</sup>. يبدو أن لظواهر شبه الذهنية تنزرب البربية بمضطراب ذهلي في نيب، قضيطة من لمرهاتين عند وجود عوامل مخاطرة أخرى مثل ألب لجنيني (وجود ذهان في الأمل) أو عوامل مخاطرة قضيطة (الرض للفسي، لهجرة، لتخدام لاماري جونل) (أفسوية) أعراض لثياب، ولفق، كرب، سلوكت جيبي<sup>16,21</sup>.

فالك ترفلق يفض أنبين لظواهر شبه الذهنية وبين للفليور والليلوك التبحاري<sup>22</sup>، وتبين مراجعة في هيئة وتلجلب عدي لمام مجموع 161068 شخصاً ش اركل بغيرين درلسة قضيطة وخمس درلسات تبطلت أن لظواهر شبه الذهنية قنتت ولفق بزيادة خطر الليلوك التبحاري بمقدار 2.1 لى 3 لضعاف<sup>23</sup>.

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## Abstract

Psychotic-like experiences (PLEs) are a set of abnormal mental experiences, which do not reach the clinical threshold of psychosis and are experienced by otherwise healthy people. They are similar to psychotic symptoms, but less severe, less frequent and less persistent. They are not necessarily associated with distress, functional impairment and/or help-seeking behavior.

PLEs are commonly allied with positive psychotic symptoms, such as hallucinations and delusions. Less frequently, they also include experiences related to negative psychotic symptoms and to depressive symptoms.

Recent studies have estimated the prevalence of PLEs in the adult general population to be 5-6%. This prevalence is reportedly higher in children and adolescents. PLEs are usually transient and tend to disappear over time, particularly during adolescence. They are experienced only once or a few times in two thirds of the cases and disappear within two years in 60-70% of cases during adolescence. However, PLEs seem to be associated in a small percentage of cases with an increased risk of adverse long-term outcomes, including psychotic and nonpsychotic mental health disorders, and suicidal behavior, particularly in the presence of additional genetic, environmental and/or psychological risk factors. The presence of PLEs, nonetheless, is not a necessary or sufficient condition for the later development of a psychotic disorder or other mental health disorders.

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